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PART I

THE TECHNIQUE OF PLANINNG

(With Special Reference to Underdeveloped Economies)

THE TECHNIQUE OF PLANNING

I

INTRODUCTION

" Plan or no plan "?

The question was posed by Barbara Wooton in the 1930s and in those days a purely academic discussion would have provided a suitable answer to it. More than two decades have elapsed and the world has witnessed a really spectacular development of practical apparatus and theoretic knowledge in the sphere of economic planning. \In the nineteenth century economic events were determined by men who loved to plan for themselves. Nowadays economic events are determined by men who love to plan for others.) This is because most of us strongly believe that some sort of centralised planning is necessary for creating and maintaining orderly economic conditions.

Centralized planning not only brings about a good deal of integration and coordination between the different components of the economy but it also takes the form of projecting changes from a starting point which is connected with present economic conditions. In other words, the planners should concentrate on the existing "links" in the economy, then pull up the backward crucial "links" so as to bring about a matching between the different "links" which constitute the "economic chain". But all the time, the planners are endeavouring to find out the means and methods by which existing arrangements could be improved.) Plans are, however, not made "once and for all". If during the process of planning some maladjustment occurs or some item is out of kilter, a correction of mistakes should take place. When mistakes are patched up and adjustments are introduced the task of planning is immensely simplified.

Therefore an efficient planning machinery should first acquire the ability to build up a set of targets which are mutually consistent and this is accomplished by a judicious study of the flow structure of the entire economy which facilitates the task of projecting changes from the present set-up. Secondly the planning body should establish, in course of the planning period, that the mutually consistent targets are optimal and it is here that constant vigil is necessary so that correction of mistakes occurs at the right moment and on the right spot.

II

BALANCES IN THE PLAN

In addition to the problem of discovering a set of mutually consistent targets and establishing that these are optimal, the planners face another extremely difficult "technical" problem. This is connected with the technique of balances and it occupies a most prominent role in planning. A plan can be efficiently accomplished if the two main types of balances are correctly applied. The first group is called "crosswise" balances and the second is termed "backward" balances.

The crosswise balance is the general technique of striking an equilibrium between all output targets and the total available resources including manpower. Here we have to bring about a balance between all output goals and the total available productive factors, such as labour force, transportation, power and basic metals. The plans should fully utilize the available resources and should not call for more than what is available. The most important balance, which is to be achieved, is that between output targets of the plan and the total available manpower. If the targets for output is less than what the available labour

force could produce, then this would result in unemployment and underemployment. On the other hand, if the targets of output are more than what the available manpower could turn out, then this would create "hyper employment" or over full employment conditions and might lead to unavoidable interruptions in production. During the first stages of planning it will be a complex problem to adjust output targets in such a manner that the available labour force is fully absorbed. But still more difficult is the task of balancing output goals with the supply of power, transportation and basic metals. Soviet experience suggests that this system of crosswise balances serve as the most important means for the establishment of inter-economic links in the economy. But it was only after the commencement of the Third Five Year Plan that the method of crosswise balances became both comprehensive and efficient. In the case of India's First Five Year Plan, as it is evident now, the main drawback was the lack of a proper crosswise balance between the output targets in the private and public sector and the total available labour force.

There are two other crosswise balances which should be considered by the planners. The first one is interlinked with the problem of optimum location. Before determining the output targets the planners must decide where output is to be produced. Production should be located in such a manner that transport costs are minimized and there is an easy availability of basic materials and manpower. In otherwords an economic plan must have "locational balance" so that there is an adjustment between the output goals for each area and the supply of productive factors which could easily be made available in that area. The second type of crosswise balance is concerned

with the equilibrium that must be achieved between physical targets and financial resources. In a money economy there should always be a balance between physical conditions and financial conditions. If the financial resources fall short of physical targets there will be an accumulation of unutilized physical resources and this will upset the flow structure of the economy. On the other hand if financial resources are in excess of physical resources there will be a scramble for basic materials and inflationary conditions may become prominent. Therefore a perfect plan must maintain a proper balance between physical resources and financial resources so that money payments to individuals are adjusted to the prices charged for the goods produced. As the Russian experience suggests, a special type of tax structure together with a system of physical controls are often necessary for maintaining an exact balance between the physical items and the financial items of the plan. Indian planners are also scratching their heads in their task of striking a crosswise balance between physical conditions and financial conditions in India's Five Year Plans.

We now come to another type of balance which is also important for an economic plan. We call it backward balance because it shows the relationships between the output of finished products and their components. For instance, the output of bicycle wheels and tyres must be kept in line with the output of the base-frames of bicycles. If this is not done then the base-frames produced will not be turned into bicycles due to lack of wheels, or the tyres and wheels will remain unutilized due to a shortage of base-frames. What is true for one particular sector of the economy engaged in the production of cycles is also true for the other sectors of the economy engaged in various kinds of economic activities.

This backward balancing method is the pivot on which the technique of "planning from below" rests. For instance, if we want to increase the production of tractors by a certain percent we shall have to set in order the "base-layers" of the economy on which tractor production depends. We shall have to find out by how much would it be necessary to increase the wages bill, how much more electricity and coal would be required, as well as steel, paint and other raw materials. Our target for tractor production will be fulfilled if there is a proper backward balance between finished tractors and the productive factors which supply the various components of the tractors. Thus every type of economic activity depends on other types and if the base-layers are not properly arranged, the top layers and the apex will crumble down. That is why it is necessary to plan from the bottom and when the base is correctly adjusted it is easier to move up to the top.

III

INPUT-OUTPUT ANALYSIS AND THE PLAN—A PICTURE OF INTERDEPENDENCE

Not only the planners should try to establish a backward balance in a particular industry but they should also make a detailed study of the interdependence of economic activities because such a study immensely facilitates planning. A detailed examination of the actual structure of the web of economic interdependence helps the planning authority in finding out a set of targets which are mutually consistent. The technique which assists us to get a detailed picture of interdependence of economic activities, is known as "inter-industry" or "input-output" analysis. Both terms suggest the same fundamental concept, which is that the output of

every industry is an input to another industry or to final consumers.[1]

The basis of the input-output[2] analysis is a "matrix". A rectangular arrangement of numbers or symbols, showing, in the best possible manner, the transactions of an economy, can be called a "matrix". A set of rows and columns of figures make up a particular matrix. The receipts of one sector of the economy or the receipts by a class of transactors are indicated in each row of the matrix and each column contains the payments of one sector to another. In the matrix table of the economy each sector has one row and a column and the payments from one sector to another are indicated in the space where the column of one and the row of the other cross one another. We give below the picture of a very simple matrix.

MATRIX 1

Receipts by	Payments by	1. Firms	2. Households	3. Total
a. Firms			200	200
b. Households		200	..	200
c. Total		200	200	400

[1] The pioneer in the field of input-output analysis is Professor Wassily. W. Leontief of Harvard University. See W. Leontief "The Structure of American Economy, 1919-1939" (New York: Oxford University Press, 1951). See also Leontief and others, "Studies in the Structure of the American Economy" (Oxford University Press, 1953).

[2] J. R. Hicks defines an input as "something which is bought for the enterprise" and an output as "something which is sold by it".

Matrix 1 shows that in a self-contained economy, in which all commodities produced were at once consumed, total payments by "households" on the purchase of commodities (called "expenditure") would equal total receipts by firms in respect of the sale of goods. It also states that total payments by firms to households in respect of the purchase of services of factors of production, which include profits, would equal total receipts by households in respect of the sale of these services (called income).

As it is evident from the above simple table, the matrix form not only signifies the interdependence between firms and households but also facilitates national accounting by helping us to show the income-expenditure equality in the self-contained economy. The total of payments of income by firms is so defined as to be equal to total value of the product of firms. (It should be noted that income includes profits.) But as the whole product is consumed in our self-contained economy, total receipts of firms from sales should be equal to total value of product. Now because total receipts from sales is identical to total expenditure, therefore total expenditure would equal total income. It should be noted that the main advantage of the matrix form over the commonly used account form is that the former economizes space and has, therefore, proved to be a convenient technique for analysing the complicated web of inter-industry dependence.

From our very simple matrix let us now turn towards another which, though slightly complex, shows in a distinct manner economic interdependence. We now consider a very simple economy with only two industries which are "manufacturing" and "agriculture". These two industries sell a portion of their product to households and a portion to one another as raw material. For instance, "agriculture"

(which includes fruit-growing) may sell mangoes straight to consumers and also to "manufacturing" for making jam, pickles and other condiments. In the first case the mangoes constitute a portion of what is called "final output". In the second case the "output" cannot be called "final" because it is in turn an "input" of "manufacturing" and contributes to the manufacture of jam and other condiments which constitute the "final output" of the manufacturing industry. Similarly, "manufacturing" may sell D.D.T. and other insecticides to households for mosquito killing but also supply insecticides to "agriculture" for pest and insect control in which case D.D.T. etc. serve as "input".

In matrix 1 the heading "firms" cover both "manufacturing" and "agriculture", each of which sells to the other one, but their transactions were not shown. If we wanted, we could have inserted the value of all inter-industry sales in the space where the firms' column and the firms' row intersected. This we do now in matrix 2 and distinguish receipts and payments of "manufacturing" from those of "agriculture". We must sub-divide the firms' row and column as shown in the following, amended, chart—matrix 2:

MATRIX 2

Receipts by	Payments by	1. Firms		2 House-holds	3. Capital	4 Total
		Manufac-turing	Agricul-ture			
a. Firms	Manufacturing	...	20	80	20	120
	Agriculture	30	...	80	20	130
b. Households		90	110			200
c. Capital		..	...	40	...	40
d. Total		120	130	200	40	490

Payment · Total

Matrix 2 indicates that "agriculture" purchased "inputs" valued at 20 from "manufacturing" and that "manufacturing" bought "inputs" valued at 30 from "agriculture" The total receipts of firms, shown in the two sub-divisions of row 'a', are now $120 + 130 = 250$ compared with 200 in matrix 1. This is due to the fact that in matrix 2, we indicate the receipts of each group of firms from the other group, as well as the receipts by each group of what is called "final expenditure" that is expenditure on consumption (shown in the households column) and on investment (shown in the capital column.) Similarly, total payments of firms, indicated in the two sub-divisions of column 1, now include intergroup payments, and add up, in a similar manner, to 250. Gross national expenditure, which is equal to the difference between total receipts of firms (i.e. 250) and inter-firm payments (i.e. 50), is same in magnitude (i.e. 200) as in matrix 1. It should be noted that gross national income is determined, in a similar fashion, by deducting inter-firm payments from total payments of firms. Both results are, certainly, equivalent to gross national product.

The aggregates to which the names gross national "income", "expenditure" and "product" are given can thus be determined from a more elaborate table* by taking away those items which constitute a simple transfer between firms inside a sector and do not represent a net addition to resources available for consumption or investment. When we say that inter-firm transfers do not add to national resources we simply mean that once a firm has processed

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* We give in Appendix A, a slightly more elaborate matrix table than matrix 2. It can be called a "miniature input-output Table" for U.K. (in 1950). In Appendix A we also give a simple exposition of the mathematical procedure associated with the input-output technique.

the raw materials or "inputs" passed to it, (and "processing" includes transporting over space and time as well as changes in form) the mere transfer of legal ownership and control to another firm is not considered to add to value.

But the planners require an elaborate matrix table not only for the calculation of the gross national product but also for the purpose of studying inter-industry relationships so as to find out a set of mutually consistent targets. *They have to see to it that in each industrial sector the predicted level of output is neither too large nor too small.* A target is too large if it cannot be achieved with the resources available or if for its fulfilment we have to deprive the other sectors of necessary resources. On the other hand, too low output target would mean that it can be accomplished without making even modest demands on other sectors which can be easily met. When the planners have found out the optimum target for one sector, they must proceed ahead and find it for the next and so on in detail for the entire economy. A good plan would come out, and the nation would be immensely benefited, if the planners are successful in finding out a *single, unique set* of targets which are optimal (*i.e.* from which no further alteration is possible or desirable). In otherwords a proper job of planning is done when planners have found simultaneously the right size of target for each sector, specially taking account of its dependence on other sectors, and of other sectors on it. The matrix technique, with which the input-output analysis is associated, greatly facilitates this task of planning.

For the purpose of studying the web of inter-industry dependence the planners should specially concentrate on the corner of the matrix which relates only to "firms". A fairly complete picture of real life inter-industry relations would,

definitely, require a very large area of paper. One such table[4] is being now compiled for U.S. economy by American economists and statisticians. In such an elaborate table the whole economy is divided into many sectors. The nature of the branch of industry, as judged from the type of goods produced, constitutes the basis for this sector division, which is, therefore, obviously functional.   An elaborate input-output system includes for example, sectors for grain products, for textile mill products, for printing and publishing, for iron and steel, for coal, gas and electric power and many more.   As we know from our matrix study, these sectors become the table headings both vertically and horizontally. Every row indicates the division of production results ("output") among the various industrial branches, and every column indicates a sector's use of goods, etc, ("input") from each of the others. The matrix form of representation only helps us to grasp the fundamental feature of the input-output analysis.   The basic technique will not be fully revealed unless we give a simple algebrical interpretation of the input-output model.[5] (The basic static input-output model is made up of two sets of relations: (a) the "balance equations" and (b) the "structural equations".) Let us first explain the "balance equation". (Each one of the "balance

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[4] The Division of Inter-industry Economics, U.S. Bureau of Labour Statistics, has provided the input-output data from which a table is being compiled which contains 500 rows and 500 columns.   For an elaborate input-output study of U.S. Economy for 1947 see W.D. Evans and M. Hoffenberg "The Inter-industry Relations Study for 1947" in the Review of Economics and Statistics, May, 1952.

[5] See Wassily Leontief, and others, "Studies in the Structure of the American Economy—Theoretical and Empirical Explorations in Input-Output Analysis". Part I. Ch. 2—article by Leontief on "Structural Change". Also see Part I, Ch. 3 entitled "Dynamic Analysis".

equation" reveals that the *total output* of a given industry is absorbed either by itself or by other industries, or by the "outside" sector (e.g., consumption).) (The "balance equation" idea would be easily understood because of our previous knowledge of the *matrix technique.*) Now if the number of industries (apart from the "outside" sector) is n, the "balance equation" for the ith industry may be symbolically written as:—

$$\chi_i = x_{i1} + x_{i2} + \ldots + x_{in} + Y_i$$

where x_i is the total output of the ith industry, and Y_i is the amount of the product of the ith industry, absorbed by the "outside" sector.

In other words, the "balance equation" for the ith industry tells us that the total output of the ith industry is absorbed by n number of industries (within which the ith industry is also included) and also by the "outside" sector (for consumption purposes).

(We now come to the "structural equation". Let us take two industries—ith industry and kth industry. What we require is the ratio of the amount of the ith industry's product absorbed by the kth industry to the output of the kth industry.) This is a very important ratio—it may be called the ith "technical coefficient" in the kth industry and is denoted by α_{ik}. In other words we have

α_{ik} (the ith technical co-efficient in the kth industry) =

x_{ik} (amount of the ith industry's product absorbed by kth industry)

$$= \frac{}{x_k \text{ (the total output of the } k\text{th industry)}}$$

The above relation, when solved for x_{ik} becomes

$$x_{ik} = \alpha_{ik} \cdot x_k$$

and is called a "structural equation". (A system of "structural equations" indicates the "flow-structure" of the whole economy.) But to get this basic static model, we must

know the appropriate technical coefficients (i.e. technical coefficients of the a_{ik} type). These technical coefficients are also called "flow coefficients".

For purposes of dynamic analysis, we have to take into account the fact that some of the output of a given period goes into stocks (capital goods or inventories). The stocks are assumed to be distributed among the n industries, although the possibility of the "outside" sector holding stocks is not ruled out. If S_{ik} denotes the stock of the ith commodity held by the kth industry and $\dot{S}_{ik}$ the increase* (positive, zero, or negative) in S_{ik} over the given period, the balance equation of the ith industry (in the dynamic input-output model) now becomes

$$X_i = x_{i1} + x_{i2} + \ldots \ldots + x_{in} \, (+ \, \dot{S}_{i1} + \dot{S}_{i2} + \ldots \dot{S}_{in} \,) + Y_i$$

The above equation simply tells us that the output must be absorbed by some industry, either on current or capital account, or else be used by the "outside" sector. This is the (modified) "balance equation" for a dynamic input-output model.

Let us now find out the "structural equation" for the dynamic analysis. The ratio of stock of the ith commodity used by the kth industry to the output of the kth industry may be called the ith "capital (stock) coefficient" in the kth industry, and is denoted by b_{ik}, so that

$$b_{ik} \quad \text{(the ith capital coefficient in the kth industry)} = \frac{S_{ik} \text{ (Stock of the ith commodity used by the kth industry)}}{X_k \text{ (total output of the kth industry)}}$$

The above relation, when solved for S_{ik} becomes

$$S_{ik} = b_{ik} \cdot X_k$$

and is called a "structural capital-flow (or stock-flow) equa-

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* More precisely, all entities are regarded as instantaneous rates. Therefore in mathematical jargon $\dot{S}_{ik}$ is the time derivative of S_{ik}.

tion.   The dynamic input-output model gives us a clear picture of the capital structure of the economy provided we know the appropriate "capital (stock) coefficients" of our system.

(Having understood the basic features of the input-output system, let us now indicate how the input-output approach can serve as an efficient technique for planning. First we shall try to find out whether it is possible to utilise, profitably, the static and the dynamic input-output techniques for the planning process.   Then we shall show how the "linear programming" method[7] (of which Leontief's input-output model may be considered a special case) can serve as an efficient tool of planning.)

From our analysis of the static and dynamic input-output models, it is evident that the dynamic approach is more suitable for the planning process. In both the static and dynamic approaches, the most important point is our emphasis on a definite technical relationship between input and output which helps us to get the technical coefficients—whether it be a "flow coefficient" of the static model or a "capital coefficient" of the dynamic model.

In the static approach we are mostly concerned with the task of a detailed analysis of the web of inter-industry dependence. Therefore the "flow coefficient" or "input coefficient" concept solves our problem. For showing the "flow structure of the economy" with the aid of the static approach we must know the input requirements of each industry. This input requirement, obviously, depends upon

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[7] It should be noted that the "generalized activity model" (which is an extension of "activity analysis" encompassing nonlinear, as well as linear, processes) covers both (a) the linear programming model (of which Leontief's model is a special case), and the traditional curvilinear model, (as, say, in Allen or Hicks).

a special type of technical coefficient which indicates the technical relationship between the industry's inputs and its outputs. The name "input coefficient" or "flow coefficient" is usually given to this special type of technical coefficient which helps us to calculate the input of any commodity required by an industry per unit of its output. If we want to form a clear picture of the web of inter-industry dependence in an economy we must show, in a distinct manner, the "flow-structure" or the "input-structure" of the whole economy and this could be done very easily if we have complete information regarding "flow-coefficients" or input-coefficients". (It should be noted that the "flow-coefficients", once calculated, are regarded as almost fixed for a short period of time.) Now if an estimate of the total resources of the economy is available, a clear picture of the flow-structure would help us a lot. This is because a distinct picture of the flow-structure of the economy would help us to find out whether the change in the final demand (constituting the demand of the house-holders and the government) could be fulfilled, and if it could be. what should be the consistent and optimum manner of doing it.[1]

The static input-output approach, however, neglects the "capital bases" on which the flow-structure of the economy is founded. During the planning period the rate of capital formation experiences a rapid change and therefore the "capital bases" of the economy cannot be regarded as constant elements. As the "capital-bases" are undergoing a speedy transformation we must first form a clear picture of the capital structure of the economy and subsequently adjust the "flow-structure" to it. Sufficient information

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[1] See W. W. Leontief, "Output, Employment, Consumption and Investment." Also see W. W. Leontief, "Input-Output Analysis and its Use in Peace and War Economies".

about "capital coefficients" (a "capital coefficient" indicates the capital stock requirements of each commodity per unit of output of a given industry) helps us to get the capital structure of the economy. (It should be noted that the "capital-coefficients" are also taken as fixed for a short period of time). When we properly harmonize the "capital structure" with the "flow structure" we get a comprehensive input-output system which is very useful for dynamic analysis in connection with planning.[9]

When planning is undertaken in an underdeveloped economy, like that of India, aiming at rapid economic development, can we apply the input-output technique?   It will be possible to utilize the technique, most efficiently, provided we have proper estimates of both the types of technical coefficients (i.e. "flow coefficient" and "capital coefficient"). Unfortunately we lack complete and correct statistical data regarding the technical relationship between the inputs and outputs of every type of industry, (though a praiseworthy attempt is being made, by a group of foreign and Indian experts, at the Indian Statistical Institute, in finding out, roughly, the capital and flow coefficients of a few Indian industries). Moreover, in an underdeveloped country, labour-intensive industries (like household, handicrafts and cottage industries) are usually quite prominent in the initial period of planning (as is evident from India's

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[9] Given the basic conditions and also the time-period (say, 5 years), one can calculate the flow coefficients and the capital coefficients of an economy. In addition to all this if the time shape of the final demand is also known, one could find out definitely (by solving a system of linear non-homogeneous differential equations) what should be the consistent and optimum levels of outputs of various industries *after 5 years.* (See also K. Lomax, "Allocation and Programming in Modern Economies" Manchester School Magazine, September, 1953.)

planning technique) and this makes the calculation of technical coefficients still more difficult. It is comparatively easier to calculate the flow and capital coefficients for a capital-intensive industry which is much better organised than a labour-intensive industry.

All this does not mean that the input-output technique should be put on the shelf by the planners, in an underdeveloped country, in the initial stages of planning. There is a way out. In the absence of reliable statistical data regarding inputs, outputs and capital stocks of different industries we have to resort to, what is called in statistical economics, "the first order approximation method". In otherwords, we have to assume that for every industry inputs are proportional to outputs.

This assumption of proportionality between inputs and outputs will not go against the model of Professor Leontief (the Harvard economist who is pioneer in this line). Professor Leontief himself made the "linearity assumption" to simplify the analysis involved in his input-output matrix.[10]

By the "linearity assumption" we mean that the demand by one industry for the product of another can be represented by a straight line. Let us now see, what this means in the case of two basic industries—say, coal and steel. If we assume that 5 tons of coal are used in the manufacture of 1 ton of steel. Then, it takes 250 coal for 50 steel, 500 coal for 100 steel, and so on. If this is so, then the demand for coal by the steel industry can be represented by

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[10] With a good deal of oversimplification, one can visualize input-output analysis as the technique of "fitting" a one-parameter curve (i.e. a straight line through the origin) to a one-dot scatter diagram. It is obvious that if the curve to be "fitted" had two or more unknown parameters, no unique fit would be possible (i.e., the relations would not be "estimable").

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a straight line[11] and this would satisfy the linearity assumption. In otherwords we are assuming that there is a fixed ratio between an industry's output and its need for any specified raw material which means that there is a strict proportionality between an industry's output and its use of raw materials (i.e. inputs). Thus the "first order approximation method", which emphasises the proportionality between inputs and outputs, is directly derived from the linearity assumption.

The over simplified assumption of a fixed ratio between the output of an industry and its demand for raw materials is specially justified in connection with an input-output matrix for an underdeveloped country undertaking planning. This is because the linearity assumption and the first order approximation method[12] immensely decreases both the amount of information needed and the difficulty of the computational problem. Therefore it is of great advantage, specially in an underdeveloped country, where there is a serious dearth of reliable statistical informations and also of extraordinary computing machines like the electronic calculators or the giant "electronic brains". Thus, if we make the linearity assumption and utilize the "first order approximation method", then the input-output matrix method may be conveniently utilized as a planning technique.

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[11] Linear relationships also greatly facilitate graphical analysis because such relationships can be easily expressed in the form of straight lines.

[12] Actually speaking the hall-mark of Leontief analysis is a set of "fixed technical coefficients" (the fixed "flow coefficients" and the "fixed capital coefficients"). "Fixed technical coefficients" imply that to produce one unit of product, we require k units of labour, j units of coal, i units of steel, and so on—where k, j, i, are known numerical constants. This assumption, however, can be broken down into two components: (a) the assumption of "constant scale returns", and (b) that of "fixed proportions" between inputs.

The linearity assumption not only emphasizes that all structural relations of the productive system can be geometrically represented by straight lines or planes[13], but also shows that Leontief's input-output model may become a special case of a more general technique known as the linear programming model.

(In linear programming it is assumed that every input and every output is proportional to the activity level. Therefore (for a given activity!) the input-output (as well as input-input and output-output) ratios are constant.) But even in the linear programming models these ratios are different for different activities. As a result of this the ratios may change from one period to another because of resource limitations, price considerations, capacity limitations etc.[14]

In mathematical jargon, "linear programming" consists in the maximization or minimization of a linear function subject to a number of linear constraints. These constraints may take the form, either of linear equations or linear inequalities.

Now let us visualise an input-output matrix, with the linearity assumption, which would easily fit into the broad linear programming framework. Such a model will definitely help us to find out whether the production of any final bill of goods[15] is possible or not. This is exactly the

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[13] The planes may, of course, be in more than three dimensions. Cf. Burgess Cameron, "The Production Function in Leontief Models", *Review of Economic Studies*, Vol. xx (1), pp. 64 to 66.

[14] For a simple exposition of the linear programming technique see "An Introduction to Linear Programming" by A. Charnes, W. W. Cooper and A. Henderson (New York. John Wiley and Sons, Inc.)

[15] The listing of the amounts absorbed by the "outside" sector (specially for consumption purposes) is called the "bill of goods".

problem which the economic planner would like to solve. (The main question which baffles the planner is whether the *production of a given bill of goods is possible, within the planning period, under a set of pre-determined constraints or restrictions.* The linear programming technique gives an excellent solution to this problem.)

The planners should, first, make a list of the important restrictions or limitations in the various sectors of the country's economy—constraints like capacity limitation, capital equipments and technical personnel bottlenecks, exchange resources' limitation, etc. Such limitations become very prominent[16] when planning is undertaken in an underdeveloped country like India.

The list of limitations would give the planners the number and nature of restrictions which would enable them to formulate a set of "linear constraints".[17] (These constraints may take the form, either of linear equations or linear inequalities.) The planners should next find out the preference function (the function which they would like to maximise or minimize during the planning period). The

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[16] For a very interesting discussion of this problem see, "Technique of Programming Economic Development" by Raúlprebisch.

[17] We get a really significant linear programming problem when we have a set of m linear constraints of the form $aj_1 x_1 + aj_2 x_2 + \ldots \ldots + aj_n x_n = bj$ for $j = 1, 2, \ldots \ldots, m$. (It should be noted that n indicates the number of variables and that m should be less than n). See also—"An Introduction to Linear Programming"—by A. Charnes, W. W. Cooper and A. Henderson. (New York, John Wiley & Sons, Inc.) Part I Section 2 and 9.

preference function should be a linear function"[17] and should roughly indicate the composition of the final bill of goods, which is to be produced during the planning period, subject to a set of restrictions (which the planners have already determined).

[Our brief survey of the input-output analysis has fully emphasized the interdependence of output decisions. No planning board can neglect this vital point while deciding its preferences and output goals. In a capitalistic, "mixed" economy (where the private and the public sectors are working side by side) the job of integrating production decisions and production processes is almost automatically done by the market mechanism ; yet, due to mutual interdependence of industries, the central planners are baffled with a basic problem. To solve this problem the planners have to turn to what the mathematician calls simultaneous solution.]

[The technique of simultaneous solution was first effectively utilized in economics by Walras"[18] in his "general equilibrium" analysis.] The input-output technique gives an empirical content to the "Walrasian" type of general equilibrium study and shows how the Walrasian method can be used to extend our general understanding of the effects of given courses of action.

This simultaneous solution method is also the keynote of Keynes' theory of employment and income determination.

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[17] We can put it in this manner : assuming there are n variables, $x_1, x_2, \ldots \ldots x_n$, then a linear function of these variables will be of the form $Z = b_1 x_1 + b_2 x_2 + \ldots + b_n x_n$, where the b's are known, so that in each of the n terms in the function only one variable appears with power one and along with a constant coefficient.

[18] Léon Walras (1834-1910) was the first to conceive the notion of general economic equilibrium which should be contrasted with the partial-equilibrium study of Alfred Marshall.

(The problem of mutual interdependence becomes very important in determining the level of national income.[20]) In Leontief's input-output model also the two vital building blocks are the mutual interdependence problem and the simultaneous solution method. That is why many economists[21] have recently pointed out that the input-output analysis is intimately related to the conceptual framework of Keynes' "The General Theory of Employment, Interest and Money". Both the input-output model and Keynes' model are concerned with the aggregative approach. Both concentrate on the entire productive system of the community. In otherwords, both are macro-models. Therefore both try to explain mainly the levels of output and factor-employment of the community.)

But the Keynesian type of model, though it has a good deal of interpretative value, is oversimplified. In the Keynesian model all industries are considered to be a single homogeneous aggregate (or atmost to be made up of "consumer-goods" and the "investment-goods" industries) but the Leontief model takes into account the existence of many industries. \ Therefore we can consider the input-output analysis "as a development of the analysis of equilibrium levels of social output and employment from the single-industry case of The General Theory' to the many-industry case where the number of industries may be three,

[20] See R. Ruggles—"National Income Accounting and Input-Output Analysis—Its relation to Economic policy". Also see L. R. Klein.—"On the Interpretation of Prof. Leontief's System"—article in J R. N. Stone and J. E. G. Utting—"The Relationship between Input-Output Analysis and National Accounting".

[21] See "Input-Output Analysis—An Appraisal" (Published by the National Bureau of Economic Research, U. S. A.)

thirty or three-hundred."[22] In otherwords, the Keynesian model regards the national output as a homogeneous entity, and does not allow us to trace the results of changes in any particular part of the production sector. The input-output analysis, by making an elaborate sector-wise study of the Keynesian system, presents a much more detailed picture of the aggregative approach and this immensely facilitates the planning process and the formulation of economic policies.

IV

GROWTH ECONOMICS AND PLANNING

From the comprehensive sectorwise study of entire productive system we now turn to another fundamental problem which the planners have to solve: How to accelerate the rate of productivity of the economy during the process of development and capital formation? Growth economics has close kinship to this problem. In our study of growth economics we endeavour to find out not only the methods which should be adopted for increasing the aggregate output, but also the techniques which should be introduced for revitalizing the entire economic structure of the country so as to increase general productivity and also productivity per capita. Growth economics also refers to the problem of capital formation. This is quite obvious because in any plan for increasing production, productivity or employment must involve huge amount of capital investments.

Problems related to the growth of capital as a determinant of economic growth have received considerable attention at the hands of analytical economists because excellent economic models can be constructed and the results can be used for practical analysis. Domar, Harrod and Joan

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Robinson's[23] dynamic models are most important.)

We shall now present an over-simplified version of the Harrod-Domar approach and indicate how far this model can be used as an effective tool of planning. Let us take *"Y"* for the level of national income and *"t"* for time period. Then the expansion of income between two periods *"t-1"* and *"t"* is indicated by $Y_t - Y_{t-1}$ and let us call it ΔY (*i.e.*, increment in income between the two periods). Then we have the identity:

$$Y_t - Y_{t-1} = \Delta Y$$

Now if *"I,"* is the net investment in Period *"t"* and $\frac{C}{O}$ is the Capital-output ratio (*e.g.* if the original stock of capital at the beginning of the period under consideration is 500 and the net output obtained from a year's use of this stock along with other factors is 100 then (the capital-output ratio $\left(\frac{C}{O}\right)$) is 500 : 100 or 5 : 1) then we have:

$$\Delta Y = I_t \times \frac{O}{C} \qquad \{I\}$$

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[23] (i) Harrod—An essay in *Dynamic Theory, Economic Journal,* 1939. Also see Harrod—Toward a Dynamic Economics (Macmillan, 1949).

(ii) Evsey Domar—"Capital Expansion, Rate of Growth and Employment"—*Econometrica,* April 1946. E. Domar—"Expansion and Employment"—*American Economic Review,* March 1947. Also see E. Domar —"The Problem of Capital Accumulation"—*American Economic Review,* December 1948.

(iii) Mrs. Joan Robinson—"Theory of Capital Accumulation." (To be published.) The writer came into direct contact with Mrs Robinson during the "Advanced Refresher Course in Economics" (held at Poona in the summer of 1955) and had the opportunity of a discussion with her regarding the basic structure of her new macro-dynamic model (presented in her forthcoming book "Theory of Capital Accumulation" and also in "Problem of Capital Accumulation."— Macmillan, 1956.)

Where $\frac{O}{C}$ is the reciprocal of the capital-output ratio, $\frac{O}{C}$ is also sometimes called the "productivity ratio". In otherwords the expansion of national income between two periods of time is equal to the total increase in productive capacity resulting from the net investment amounting to I_t (i.e. why net investment I_t has been multiplied by the productivity ratio $\frac{O}{C}$).

Now we divide both sides of equation (1) by Y_t and we have :

$$\frac{\Delta Y}{Y_t} = \frac{1}{Y_t} \times I_t \times \frac{O}{C}$$

$$\text{or } \frac{\Delta Y}{Y_t} = \frac{I_t}{Y_t} \cdot \frac{O}{C} \qquad (2)$$

But $\frac{\Delta Y}{Y_t}$ is the samething as "g" which indicates the rate of growth of output of the society (i.e. the rate at which a society will have to expand its capacity to produce). Now equation (2) can be written as follows :

$$g = \frac{I_t}{Y_t} \cdot \frac{O}{C} \qquad (3)$$

But for every level of income and employment, investment is equal to saving ; therefore we can say that $I_t = S_t$ (where S_t is the volume of saving in period "t"), so that we have :

$$g = \frac{S_t}{Y_t} \cdot \frac{O}{C} \qquad (4)$$

If we call $\frac{S_t}{Y_t}$ the savings-output (or income) ratio then we find from equation (4) that the rate of growth is determined by the savings-income ratio and the reciprocal of the capital-output ratio. The equation (4) (given above) presents in a nutshell the main idea of the growth models conceived by Professors Harrod and Domar. This growth

equation *i.e.* equation (4) can be regarded as the simplest version of the Harrod-Domar formula.[24]

(Let us now see how the planners can use the Harrod-Domar formula *i.e.* our equation (4) in course of planning. Suppose that in the beginning of the planning period it is found that the ratio of capital to annual output is 5 to 1, then $\frac{C}{O}$ is $\frac{5}{1}$ and its reciprocal *i.e.* $\left(\frac{O}{C}\right.$ (the productivity ratio) is $\frac{1}{5}$; and if the planners decide to expand the society's capacity to produce by 3 per cent per annum (*i.e.* "g" the rate of growth is 3% or $\frac{3}{100}$) then with the help of the Harrod-Domar formula, they will be in a position

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[24] Actually speaking Harrod's formula is $\left(G_w = \frac{S}{C}\right) G$; where "G_w" is the warranted rate of growth, "G" stands for growth (it is the increment of total production in any unit period expressed as a *fraction* of total production), "S" is the fraction of income saved and "C" is the capital coefficient of production (*i.e.* the value of the increment of capital stock in the period divided by the increment of total income). The Domar equation can be written in the following manner: $I = \frac{I}{\sigma}\left(\frac{\triangle I}{\triangle t} \times \frac{I}{\alpha}\right)$; where "α" is the marginal propensity to save, "σ" is the potential social average investment productivity, "I" is investment, "t" is time period and "$\triangle$" denotes slight incremental change. From this it can be ultimately shown that, *according to Domar, the equilibrium rate of growth depends on the size of the multiplier and the productivity of new investment.* The equilibrium rate of growth $= \alpha \times \sigma$; but we know that "$\frac{I}{\alpha}$" (*i.e.* the reciprocal of the marginal propensity to save*) gives the magnitude of the multiplier and "σ" indicates the productivity of new investment.

to find out the value of the savings-income ratio (i.e. $\frac{S_t}{Y_t}$). If in our equation (4) we write $\frac{3}{100}$ for "g", $\frac{1}{5}$ for "O" and "x" (the unknown term) for $\frac{S_t}{Y_t}$ then solving equation (4) we shall find that $x = \frac{15}{100}$. In other-words, if the capital-output ratio is 5 to 1 then a society will require to save 15% of its annual income, if its rate of growth of output is to be 3% per annum.) Having discovered this the planners would chalk out the plan in such a manner that the community is saving 15% of its annual income every year during the planning period. Given the capital-output ratio, the target rate of growth of output during the planning period determines the average (annual) rate of savings. Thus the fundamental task of the planners would be to find out suitable methods for generating within the economy the required volume of savings during the planning period. The planners should also take proper steps for the effective mobilization and utilization of this saving in a manner which would facilitate the fulfilment of the investment targets of the plan.

Now the question is: Can we apply the Harrod-Domar formula for explaining the development process under any type of planning technique? The Harrod-Domar method is a suitable tool of analysis when we have a process of balanced development during the planning period; it would not be a legitimate technique when we have a system of unbalanced growth.[25] In the case of balanced growth, during the planning period, consumption, investment and income grow at the same rates and as a result of this the savings-income ratio and the capital-output ratio remain

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[25] The writer had the opportunity of discussing this point with Mr Nicholas Kaldor (Cambridge University) and Mr. Lorie Tarshis (Stanford University).

constant during the planning period and we are in a position to apply the Harrod-Domar formula.

But under planning with unbalanced growth usually the heavy industries grow at a faster rate than the rest of the economy. The fundamental feature of this technique is that there is an unbalanced growth mainly between heavy industries and consumption goods industries. (This technique was originally introduced by the Russians in their Five Year Plans. It is now evident that India has also adopted this method for her Second Five Year Plan). Therefore in the case of unbalanced growth, investment will grow at a higher rate than income and income at a higher rate than consumption ; consequently the savings-income ratio and the capital-output ratio will change during the planning period. That is why, in the case of a process of unbalanced development, the average of the savings-income ratio and the capital-output ratio cannot give correctly the annual rate of growth of output (or income) of the developing economy.

(In otherwords we cannot make much use of the Harrod-Domar formula, in the case of planning with unbalanced growth, because during the plan-period the savings-income ratio and the capital-output ratio would change.) One way out would be to make an estimate of the rate of growth of output, capital-output ratio, and savings-income ratio for each year which would enable the planners to find out correctly the amount of effort necessary during each year of the plan-period.[a]

We now turn to the most recent and outstanding theory of economic growth and this comes from Mrs Joan

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[a] This explains why the Indian Planning Commission is recently stressing so much the importance of annual planning and is pointing out that the Five Year Plan is only a broad frame work.

Robinson of Cambridge. Her "Theory of Capital Accumulation"[27] is a macro-dynamic general theory which can be applied to both mature and immature capitalistic economies.

Mrs Robinson's model has close kinship to Keynes' aggregative approach because both are macro-models. But the main defect of Keynes' macro-model is that it is not truly "dynamic". Keynes always took the existing historical situation (of today) as something given and by analysing it he derived that particular policy which should be pursued in the future. For Keynes "tomorrow" will be different from "today" due to what has happened "today". Keynes left out the long period analysis (and consequently growth problems) simply because he was not interested in it. Therefore Keynes' "General Theory—Aggregative Approach" is a short-period macro-model and to make it a "macro-dynamic-long-period model", the growth element has to be incorporated. If this is done, the task of generalisation of the "General Theory" would be complete. Mrs Robinson, an ardent disciple of Keynes, has done it. Her own model can be regarded as the "dehydrated", Keynesian aggregative approach extended to the long period dynamic analysis and, therefore, can be profitably utilized for analysing problems of development and growth in both planned and unplanned economies. (Under planning the aim is accelerated economic development within a time limit therefore the study of economic growth with the help of a macro-dynamic model becomes really significant.)

[27] See Mrs Joan Robinson—"Theory of Capital Accumulation". (To be published.) (Starting with the simplest possible model of a capitalist economy she finally constructs a macro-dynamic model and applies it to (a) Land, (b) Rentier, (c) Finance and (d) Value Theory This has caused another revolution in our science of economics—"The Robinsonian Revolution").

Let us now find out the main features of Mrs Robinson's macro-dynamic model so that we may use it as a suitable planning technique and as an economic tool for analysing the problems with which a capitalistic country is confronted in the process of rapid economic development during the planning period.

According to Mrs Robinson the investment activity of the capitalists is the fundamental determinant of profits and wages. Therefore the rate of accumulation (which depends on capitalists' investment activity) is the prime mover of the capitalistic economy and so it is obvious that the pace of economic development would be decided by capitalist investment. Next, coming to saving, we find that, though all classes of the community do some amount of saving, profits (earned by the capitalists) constitute the most important source of saving. (It is assumed that the volume of saving undertaken by salary and wage earners is meagre because their propensity to save is small.) But the quantum of profit is determined by capitalist investment (which depends on the rate of accumulation) and capitalist expenditure on consumption.

As a result, two slices of the national product constitute capitalist investment and capitalist consumption and the remainder make up wages and salaries (though the level of wage depends on the rate of accumulation, provided the technical conditions are given). Thus in the Robinsonian system salaries and wages are residual and this should be contrasted with the Ricardo-Marx macro-dynamic model in which profit is the residual element.

In Mrs Robinson's macro-dynamic analysis the most important objective is not the achievement of full employment or near full employment condition which is associated with Keynes' macro-short period analysis

and is connected with the trade cycle problem. In her long-run growth analysis, Mrs Robinson is more concerned with the "trend"[28] factor than the cyclical factor. She makes the trend analysis and the study of the growth problem clearer with the help of the "Golden Age" concept. She believes that if long run accumulation takes place in a proper manner in the capitalist economy, the ideal and perfect dynamic equilibrium condition would be realised and this is called the "Golden Age".

In a "Golden Age" economy the shares of wages and profits remain constant and all elements in the economy expand in the same proportion which indicates that in such an economy there is "neutral technical progress"[29] under an appropriate rate of accumulation. Further, in the Golden Age economy a perfectly definite rate of profit[30], ruling in the past, will continue in the future and anybody, who is saving money, will be willing to lend it; as a result the rate of interest will not be much lower than the rate of profit. Moreover,

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[28] The long-run tendency for any economic or social variable to rise, to remain relatively constant, or to decline is called the "trend". Therefore from a given series we can get the "trend" which shows the basic, underlying movement. This movement never assumes a wave like appearance (as in trade cycles) and usually the "trend" is a linear one i.e., in the form of a straight line. It should be also noted that the trend is produced by accumulation (depending on production functions and technical progress) whereas the trade cycle is mainly the result of short period uncertainty.

[29] According to Mrs Robinson, "neutral technical progress" means that output per man hour is rising, as time goes by, at the same rate in all sectors of the economy. The cost of capital goods in terms of labour time is then constant per man employed.

[30] This definite rate of profit should be compared with Wicksell's natural rate of interest.

in a Golden Age economy the increase in output takes place in a constant manner so that the ratio of capital to output has to be maintained. In otherwords a constant capital-output ratio is visualised in a Golden Age economy and, if this is so, it automatically follows that the share of wages and profits will remain constant.)

Now the question is: Whether it would be possible for an economy, which is undertaking planning, to reach the Golden Age condition, as a result of rapid and well balanced economic development, during the Planning period? (Mrs Robinson tells us that there is a possible "Golden Age" corresponding to any given "growth ratio".) Therefore our first task would be to find out the appropriate "growth ratio" which is to be achieved by the economy during a definite planning period.

But what do we mean by the term 'growth ratio" and what type of "growth ratio" will help us in our task? (The "growth ratio" of an economy mainly depends on population growth and the growth of productivity per head.) What we require here is the potential growth ratio of the economy which indicates the highest rate of expansion that can be permanently maintained. This potential growth ratio is approximately equal to the percentage rate of growth of the labour force plus the percentage rate of growth of output per head. Therefore (population figures, labour statistics and productivity targets will enable a well trained group of economists and statisticians to calculate roughly the potential growth ratio of the economy during a definite planning period.)

The next problem is, how can we realise this growth ratio? (The growth ratio would be achieved if the rate of accumulation is matched with it.) In otherwords the planners should, ultimately, find a technique which would make

the rate of accumulation, as a proportion of the stock of capital, equal to the growth ratio. It means that capitalist investment activities have to be controlled and supplemented by the government. That is why the public sector of the economy should play a vital role in a country undergoing rapid development by means of planning.

If we take the case of an underdeveloped country, like India, we would conclude that the rate of accumulation is definitely less than the appropriate growth ratio for the economy. The positive proof, on which this conclusion is based, is to be found in the chronic surplus of labour that appears in such an economy. (The unemployed and underemployed labour forces are symptoms of an obvious maladjustment between the rate of accumulation and the growth ratio). Therefore it is essential that the planners should properly tackle this problem of matching the rate of accumulation with the appropriate growth ratio. Once this is done, the chronic labour surplus would disappear, unemployment and underemployment problems would be solved and real wages, relatively to output per head, would rise so that all round prosperity would prevail in the economy.

V

BALANCED AND UNBALANCED GROWTH AND THE PROBLEM OF ECONOMIC SURPLUS

We have already observed that rapid economic development is the main aim of economic planning in an underdeveloped country. But the problem is: How can we achieve accelerated economic growth during the planning period? For solving this problem we shall now examine, in detail, both the techniques of planning with balanced growth and unbalanced growth. We shall also indicate the

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importance of the problem of generation, mobilization and allocation of economic surplus during the process of growth.

From the practical point of view, it is essential that the planning mechanism should generate a rate of growth which is consistent with the development of the different productive sectors of the economy. In an underdeveloped country there is a "vicious circle of poverty" which becomes evident from the relatively low per capita income and deteriorating standard of living of its inhabitants. In such a country during the process of economic development, time is the great enemy because the process of moving people from one sector of the economy to another may not be a very fast one under ordinary circumstances. Moreover, if the rate of growth of population is at all high, this will make the process even slower. Overall economic planning with special reference to population planning is an obvious solution. We, therefore, think that in an underdeveloped country the planners should try to transform the economy at a rapid pace and the aim should be the achievement of maximum tempo of economic growth within the shortest possible time.

In a densely populated but underdeveloped country like India, there is an ample labour supply and in the initial stages of development planning there would be no permanent labour bottleneck. But the labourers in such a country are not in a position (at least in the initial stages) to use complicated modern equipments. Therefore it is highly desirable to devote a considerable amount of time and thought for the simplification of modern equipments in order to meet the requirements of underdeveloped countries. Moreover if simple equipments and tools (which possess a low degree of capital intensity) are used then the capital-output ratio (i.e. $\frac{C}{O}$ of the Harrod-Domar formula)

would be low and its reciprocal (i.e. $\dfrac{O}{C}$ —the productivity ratio) would be high so that the rate of growth (i.e. "g") would be accelerated."

In otherwords, capital with a low capital-output ratio will increase the rate of development in an underdeveloped country. (This is, perhaps, one of the reasons for emphasizing household and cottage industries in India's Second Five Year Plan). This process of development would be further facilitated and the tempo of growth would definitely increase if in addition to the low capital-output ratio, we have a

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[31] For instance if we take $\dfrac{C}{O} = 2.5 : 1$ for factory industry

and $\dfrac{C}{O} = 1.5 : 1$ for cottage cum household indus-

try then in the first case $\dfrac{O}{C} = \dfrac{1}{2\frac{1}{2}} = \dfrac{2}{5}$ and in

the second case $\dfrac{O}{C} = \dfrac{1}{1\frac{1}{2}} = \dfrac{2}{3}$ but $\dfrac{2}{3} > \dfrac{2}{5} \therefore \dfrac{O}{C}$

(for cottage industry) $> \dfrac{O}{C}$ (for factory industry).

If this is so and if the saving-income ratio is more or less constant in the short period then from the simplified version of the Harrod-Domar formula ($g = \dfrac{S_t}{Y_t} \cdot \dfrac{O}{C}$) it is evident that a proper emphasis on cottage industries would accelerate the process of planned development.

It should be noted that in a recent study of capital-output ratios in the U. S. S. R. during the 1928-37 plan period, Profs. Eckstein and Gutmann have shown that the average capital-output ratio (i.e the relation between fixed capital and value of output during a time period) for small scale light industries, lies within a range of 1.6 to 2.7 and the capital-output ratio for heavy, manufacturing industries lies within a range of 2.2 to 3.1. See Eckstein and Gutmann "Capital and Output in the Soviet Union, 1928-37" (mimeographed).

high savings-income ratio. (This is also evident from the Harrod-Domar formula $g = \frac{S_t}{Y_t} \cdot \frac{O}{C}$). }

But in an underdeveloped country the volume of savings constitutes the limiting condition (at least in the initial stages of rapid economic development). In the initial stages, before planning is undertaken, we not only find a lack of economic progress but also the forces which tend to perpetuate the "vicious circle of poverty" common to most of the underdeveloped countries. Consequently, in such countries the savings-coefficient is rather low. In other-words, the low level of real income gives rise to a low level of saving and that is why, in the beginning of the planning period, the ratio of savings to income is quite low.}

Next the question is: {Whether the savings ratio will remain low for sometime in the future also? At first-sight it seems that the famous "Modigliani-Duesenberry hypo-thesis"[32] will provide a suitable answer to this question. Professors Modigliani and Duesenberry have shown that long-run flow of savings usually behaves differently from the short-term flow. They have indicated that in the long run the savings ratio is constant. Now, can we apply the "Modigliani-Duesenberry hypothesis" and say that the low savings ratio will continue to be low for sometime in the future in the case of underdeveloped countries? }We can-

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[32] This hypothesis, which indicates that outside saving is a constant proportion of income in the long-run, is an approximation. But it has reasonable empirical basis

See Franco Modigliani—"Fluctuations in the Savings-Income Ratio" (Conference on Research in Income and Wealth: "Studies in Income and Wealth", Vol. II).

Also see J. S. Duesenberry—"Income, Saving and the Theory of Consumer Behaviour"—Harvard University Press, 1949.

not emphatically say so because the "Modigliani-Duesenberry hypothesis" is based on an "econometric model"[33] (connected with a mature economy) and may not be exactly relevant in the case of an under-developed country like India where there is almost no scope for any scientific investigation regarding the behaviour of long-run savings ratio on the basis of present (insufficient) data relating to savings, consumption etc.

We can, however, make a rough guess by analysing the influence of factors affecting income distribution, degree of urbanization, etc. on the aggregate volume of outside savings. In a planned economy savings should be regarded as a "target-variable"; therefore the nature and behaviour of internal savings of the firms and the savings of the government are also quite important. We should also remember that the aggregate product produced by the community is a heterogeneous mass. (This is quite evident from our analysis of the input-output matrix.) If this is so, then savings should not only be considered as a function of aggregate production but, more properly, as a function of the composition of aggregate production.

The savings ratio may continue to be low, specially in those underdeveloped countries which are susceptible to "Duesenberry-demonstration effects". Through the various "demonstration effects" the consumption pattern set by the higher income groups is translated to the lower ones and

[33] Usually the following procedure is adopted in the construction of an econometric model: A system of equation (i.e. a model) is constructed to represent a particular theory of how certain variables interact with each other. Then by statistical techniques these equations are "fitted" to the actual statistical data so as to find out the numerical values of the constants in the equations chosen. Finally the model is tested to find out whether the results adequately explain what has actually occurred.

this gives rise to a desire for better type of goods and for a higher standard of living. This type of argument may affect human behaviour not only on the interpersonal level but also on the international level.[34]

There may be a good deal of demonstration of the consumption patterns of the inhabitants of countries possessing high real incomes (*i.e.* developed economies) through the media of films, magazines, newspapers, radios and personal contact. The opening up of new avenues of desire among the people of under-developed countries is a great handicap as it lowers the propensity to save. If this happens, then in the initial stages of the planning period inspite of slight expansion of income, the savings ratio will continue to be low.

(So in most underdeveloped countries, it is quite probable that the savings coefficient will be low not only in the beginning of the planning period but also for sometime in the future. This means that the ratio of savings to income will not only remain low in the initial period of planning (say, at the start of the First Five Year Plan) but will continue to be low in the subsequent periods (say, upto Third or Fourth Five Year Planning period).)

(If the planners in an underdeveloped country are baffled by the problem of a low saving-coefficient, they must find out an effective solution and this lies in the technique of "planning with unbalanced growth") (which we have partially studied in connection with the application of the Harrod-Domar formula).

(As we have already seen, "planning with balanced growth" indicates that *all the sectors of the economy will*

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[34] See Ragnar Nurkse, "Problems of Capital Formation in Under-developed Countries" (Basil Blackwell, Oxford, 1953).

expand in the same proportion so that consumption, investment and income will grow at the same rates. On the otherhand, "planning with unbalanced growth" emphasizes the fact that, during the planning period, investment will grow at a higher rate than income, and income, at a higher rate than consumption, so that there is a process of unbalanced development. "Planning with unbalanced growth" is an extra-ordinary technique which has to be adopted by an underdeveloped economy which, in spite of a low savings ratio, aims at accelerated economic development within the shortest possible time. The fundamental feature of this technique is that there is an unbalanced growth between heavy industries and consumption goods industries.

The Russians were the first to adopt this technique and their experiences, covering more than a quarter of a century, have convinced us that it is the most suitable technique which should be utilized by an underdeveloped country aiming at maximum economic development, in spite of an initially low saving-coefficient.) We find that in Russia during the planning period investment grew at a faster rate than consumption. The comparative neglect of consumer goods and over-emphasis on heavy industries, in fact, started from the Russian First Five Year Plan (In this plan about 86% of the actual investment in industry was in capital goods and only 14% in consumer goods.[35]) The privation of the people further increased, during the planning period, as more and more outputs of the various capital goods industries were utilized for increasing their productive capacities further, rather than for increasing the output capacity of the consumption goods industries.

Inspired by Professor Mahalanobis' Draft Plan Frame, the Indian Planning Commission have also adopted this

[35] See Bulletins on Russian Economic Development, May 1948, p. 5.

extraordinary technique of "planning with unbalanced growth" for India's Second Five Year Plan. During the Second Five Year Plan-period the rate of expansion of the investment goods sector would be much greater than the rate of expansion of the consumption goods sector.

This does not mean that there would be a total neglect of consumer goods. It should be noted that even in the early stages of an industrialisation process in an under-developed country one cannot completely exclude the expansionary tendencies in consumer goods industries. This is because industrialisation brings about a substantial amount of urbanization which means that millions of ex-peasants will require greater amount and newer types of consumption goods. Moreover, India is a democratic country and, therefore, it is quite certain that she would never fix consumption standards at "Russian type rock-bottom levels", though some amount of sacrifices and privations have to be undertaken by the Indian people at present so as to enjoy future prosperity. This point is fully borne out by India's Second Five Year Plan.

There is, however, a silver lining even in the extra-ordinary technique of "planning with unbalanced growth". With more increase in investment in the capital goods sector, there would be an automatic increase in the productivity of the basic industries. This would produce two important effects. Firstly, there would be a further expansion of the domestic market. Secondly, the supply of tools and equip-ments for meeting the demand for consumers' goods would increase and, most probably, their price would considerably fall in the long run. As a result of this, the subsequent development of consumers' goods industries would be quite rapid. Thus the marked growth of heavy industries would create a proper capital base which would generate the neces-

sary sustaining power in the course of future rapid economic development.

Besides this, the heavy industries would help each other, grow fast in sort of a spiral and put the whole economy on an accelerated rate of growth. For instance, the power group (coal and electricity) help the steel and engineering industries and in turn is helped by them; again all three help cement and chemical industries and are also helped by them. This type of interdependence of the five basic heavy industries would introduce an element of acceleration in the entire economic structure so that consumption goods industry would be, also, ultimately benefited. The result will be that, after a time lag, the rate of growth of the consumption goods sector would asymptotically reach the rate of growth of the capital goods sector and after this there would be a balanced process of development. All this means that, ultimately, there would be an harmony between the processes of growth in the different sectors of the economy; the overall rate of growth would increase and the savings-income ratio would also rise. Therefore by introducing this extraordinary technique we end up, within the shortest possible time, with a balanced overall rate of growth which is much higher than what we would have achieved with the technique of "planning with balanced growth". It is evident from the structure of India's recent planning technique that the Indian Planning Commission have fully realised the ultimate advantage of this extraordinary technique and have, therefore, adopted it for India's Second Five Year Plan.

There is, however, a potential danger in the planning technique connected with unbalanced growth, namely, inflationary pressure. Inflation arises mainly because of the fact that the excess demand for consumer goods cannot be

fully satisfied immediately due to the delayed process of development of consumption goods industries.\ For controlling the inflationary situation a double-barrelled attack is necessary. \First, consumption goods production should be increased as far as possible.) To achieve this end, resources have to be allocated to the inflation-sensitive consumption goods industries to that extent which is permissible under the technique of "planning with unbalanced growth". \Next, the idle capacities in the consumption goods sector should be fully utilized and there should be more emphasis on the labour-intensive consumption goods industries of the cottage and household types.) Secondly, with a system of strict direct controls, (the excessive consumption of the people should be checked.) In fact, direct controls are part and parcel of all planned processes of growth. Thus it is evident that, if proper safeguards are taken, under "planning with unbalanced growth" the possible risk of an extraordinary inflationary impact on the developing economy can be greatly minimized. ⏝

\The technique of "planning with unbalanced growth" directly takes us to the problem of generation of economic surplus. If we rule out considerable amount of capital imports, the main source from which the bulk of the investment in "capital-goods-heavy-industries" would come is the "economic surplus"[38] generated by the economic system

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[38] Most economists take the "economic surplus" as the difference between gross national product and aggregate "essential consumption". But it should be noted that the definition of "essential consumption" would be different for different economies

See Paul. A. Baran—"National Economic Planning" in Survey of Contemporary Economics, Volume II, edited by B. F. Haley. Also see Paul. A. Baran —"Reflections on Planning of the Economic Development of India", The Economic Weekly, Vol. VIII— \No. 7.

during the planning period. The maximum amount of "economic surplus" can be generated if consumption standards can be kept at the "rock bottom" level. This "rock bottom" level has to be decided most judiciously so that the health and productive capacity of the labour force is preserved and political stability is maintained.)

(The extraction of economic surplus from the economy for the development of heavy industries, was done in an outstanding manner by the Russian planners.) In fact, the magnificent achievements of the Soviet Government in the sphere of capital construction would not have been possible without the imposition of drastic restrictions on the consumption of the masses. Soviet official statistics reveal that the output of steel in 1950 was 549% higher than in 1913, oil 320% higher and coal 799% higher. But in the case of consumption goods the official figures do not show such a marked increase. For instance between 1913 and 1950 the output of cotton cloth increased by about 75%, woollen cloth production increased by about 79% and grain production increased by 56%. From this it is evident that the Soviet planners achieved their fundamental objective by keeping consumption at a low level throughout the planning period.

\ But what the Russians did under a totalitarian set up may not be possible in a democratic country like India.) Lowering of consumption standard would be an unsound proposition in an underdeveloped country like India because the standard of living of our people is already extremely low, and there is consequently very little scope for depressing it further. Also in India, we would not be able to keep real consumption constant at an abnormally low level during the planning period because our margin of social and political tolerance would be quickly reached. That is why the

Indian Planning Commission has not completely neglected the problem of increasing consumption goods production during the Second Five Year Planning period. Thus we find that though the Indian Planning process has the "unbalanced growth technique" as its main building block, yet it does not go to such extremes as the Russian planners did in the initial and subsequent periods of planning.) In India's Second Five Year Plan, cottage and household industries are emphasized side by side with the heavy industries and producer goods industries so as to convince the people that, in spite of unbalanced growth technique, simple and essential consumption goods would be available. Moreover cottage industries are not only important from the productivity point of view but they are also important from the point of view of solving rural unemployment and underemployment problems. (Rural underemployment can be solved in the best possible manner by dovetailing cottage cum household industries with agriculture.)

(The creation of economic surplus is only the beginning of a complicated process. Once we have created in the economy some amount of economic surplus, we must effectively mobilize it. The mopping up of economic surplus would be successful if people are patriotic-minded so that there is minimum political resistance to the fiscal cum budgetary policies of the government introduced for this purpose.)

Moreover the economic units, to which the surplus accrue, should be as large as possible because it is, administratively, much easier to tap surplus from a few large units than from numerous small ones. Co-operative organisations help to this end in a democratic country though in a totalitarian-socialistic country, collective methods are utilized to achieve the same results. (In Russia, a large portion of

the economic surplus necessary for the development of the capital goods industry was obtained from the rural sector by wholesale collectivisation of agricultural farms in the beginning of the planning process. In India collectivisation of agricultural farms is out of the question. India can be regarded as a special type of "mixed economy"[37] where the socalled "socialistic pattern of society" rests on capitalistic pillars of private property, inheritance, monopoly etc. and in such an economy co-operative methods would give the best results. That is why in the Indian planning technique, co-operation is the watchword and "co-operative village management" is the prime mover of the social engine in the rural sector.

From the point of view of mobilization of surplus savings, we must give attention to another crucial problem which is specially prominent in an underdeveloped country like India. It has been estimated[38] that in India and some other under-developed countries of South East Asia, private gold hoards are as large as 12% of the national income. In these countries, the peculiar customs or habits of the people are responsible for the hoarding of surplus savings in the form of jewellery, ornaments or precious metals. For tapping this potential domestic savings, a proper fiscal machinery has to be supplemented by an effective system of education and propaganda. In otherwords a systematic mobilization of the potential economic surplus (hidden in the country's economic structure) should be undertaken for raising the ratio of investment to national income during the planning period.

Before we proceed further a misconception must be

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[37] A mixed economy emphasizes the co-existence of the private and public sectors.

[38] See "Processes and Problems of Industrialization in Underdeveloped Countries". (United Nations Department of Economics and Social Affairs, 1955).

cleared up. In many quarters it is often claimed that in underdeveloped countries the volume of economic surplus is small, both absolutely and in relation to national income, because the volume of observed saving (and investment) is low and therefore rapid economic development would be almost impossible. Unfortunately, in this type of reasoning the boot has been put on the wrong foot. There is too much emphasis on "actual economic surplus" and almost total neglect of "potential economic surplus", hidden in the country's economic structure, which has to be tapped during the planning process in an underdeveloped country.

The actual economic surplus, which is but another name for actually observed saving (and investment), is low in an underdeveloped country because of poverty and low standard of living. Due to poverty, production is limited to bare-livelihood items and the absence of production has repercussions on per capita income: most people live from hand to mouth and obviously they are too poor to save.

But in most of the large underdeveloped countries (the best example is India) there is a huge volume of potential economic surplus locked up because of the "superfluous types of consumption" undertaken by the upper income groups and also due to the consumption of the "unproductive parasite class" of people (like money-lenders, absentee-landowners, retired civil servants and super-abundant middlemen and commission-men). In India, for instance, upper income brackets annually spend about Rs. 400 crores for maintaining a huge army of redundant domestic servants, in luxury trips abroad and in pilgrimage and sightseeing trips within the country, for acquiring jewellery and precious stones and for building palatial residences. This "super-fluous consumption" should be minimized and the potential economic surplus should be mobilized and effectively

utilized for the process of economic development during the planning period. Moreover, proper attention should be given to the unproductive workers, whom we have called the "unproductive parasite class" because they take a large slice of the national income and lock up a considerable amount of potential economic surplus in occupations which are unproductive and therefore almost useless from the social point of view. During the planning period the "unproductive parasite class" should be systematically transferred to socially useful cum productive projects which directly contribute to the development process. If this is done, then the potential economic surplus, instead of being wasted, would be utilized in such a manner that it would give further momentum to the process of accelerated growth during the planning period.

The final task is connected with the proper allocation of the "economic surplus" which has been systematically mobilized by means of effective measures. In otherwords, we must find out a suitable strategy for the distribution of the investment funds among different branches of the economy.

1. (Firstly, we have to note that a proper allocation of funds requires a three-dimensional study involving occupational preference, time preference and territorial preference.") Occupational preference deals with the problem of providing suitable opportunities for developing particular occupations which were neglected in the past but whose development is essential now from the point of view of accelerated growth. Time preference study is also important

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[3] See P. Sorokin—"Planning in the Soviet Economy"—Bolshevik—No. 24 (December, 1949). See also A. Bursky. "The Planning of the National Economy of U.S.S.R."—Moscow, Foreign Languages Publishing House, 1949.

because allocation of investment funds occurs in stages during the planning process. If the time span of a particular plan is known then the general estimate of allocation becomes easier. A study of territorial preference facilitates the allocation of investment funds because it forecasts the creation and development of new industries in undeveloped and backward areas, the restrictions and limitations on the growth of industries in congested and overdeveloped regions and the redistribution of some of the existing industries so as to fulfil strategic and socio-economic motives.

After making a proper study of occupational cum time cum territorial preferences, we have to concentrate specially on the fundamentals of the planning technique which has been adopted for the planning process. The technique adopted sets the goal and the tempo of the development programme. (If we are pursuing the technique of "planning with unbalanced growth", then it is necessary that the bulk of the economic surplus is allocated to the heavy industries' sector.) For an underdeveloped country, trying to achieve accelerated economic growth, this would be an wise allocation as it would create a proper industrial base which would serve as the main building block for the ultimate growth of all industries. In fact, the planning technique together with the production targets, decided by the Planning Commission, broadly solve the problem of the distribution of the investment funds among different branches of the economy.

In the U.S.S.R. the problem of a's proper allocation of the investment funds among different output goals is solved by means of "balance sheet planning".[46] This technique constitutes the most important device in the tool box of the Russian planners. This method helps them to strike a

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[46] See H. Schwartz—"Russa's Soviet Economy" (New York : Prentice-Hall, Inc., 1950). See also Kursky, op. cit. pp. 125-126.

balance between the estimated supplies of the major factors of production and the quantities allocated to all uses. It ultimately produces a synchronisation between investment funds and output goals. The allocations are undertaken in stages. First, broad allocations are made to consumer's goods industries, capital goods industries, and military industries, and then to narrower subdivisions of those industries. It is interesting to note, in this connection, that a new capital project in the Soviet Union is usually undertaken if the project has a high "coefficient of relative effectiveness"[41], involves minimum production cost and utilizes readily available factors of production. Projects, with high coefficients of relative effectiveness, get the topmost priority simply because they will pay for themselves in the shortest time. Next the planners compare the competing claims of different projects in terms of production costs involved. Those projects are selected for which the production costs (in money terms) are the lowest. In addition to this, they make a note of the scarce factors of production involved in competing projects. For instance, if there are shortages of zinc and aluminium then the planners will favour projects in which zinc and aluminium are not required, even though, from the point of view of money cost, zinc and aluminium-using projects would have been preferable.

The last problem that baffles the planners is: How to choose between the technological alternatives in producing the desired output.[42] In otherwords the planners have to

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[41] For instance, a capital installation might require 100,000 ruble's worth of machinery which would yield savings of 25,000 rubles annually. This project will then have a "coefficient of relative effectiveness" of 25 per cent.

[42] See F. Zweig—"The Planning of Free Societies" (London, 1942). See also E. A. Gutkind—"Principles of National Planning." (London, 1943).

decide whether labour-intensive technique or capital-intensive technique is to be adopted in producing the planned output. The abundance and "cheapness" of available labour force in an underdeveloped country would suggest labour-intensive methods of production. From this it would follow that in such countries the provision of tools, equipments and even temporary housing for the investment workers should be of a very simple type.

In this connection we should not forget that the main motive behind capital accumulation centres round the problem of increasing the rate and the amount of production. Therefore, if the technique of investment is more round about and capital-intensive, then the rate of increase of output would be slower and this would also affect the rate of development. But capital, with a low capital-output ratio, would make the productivity ratio high (because the productivity ratio can be regarded as the reciprocal of the capital-output ratio). A high productivity ratio would increase the rate of development (as the rate of development directly depends on the productivity ratio if the saving-income ratio is constant)" and would solve the problem of accelerated economic growth in underdeveloped countries. Simple equipments should be preferred in underdeveloped economies not only because in such techniques capital, with a low capital-output ratio, is used but also because the workers in underdeveloped countries (at least in the initial stages) are not capable of using complex type of modern equipments. Therefore, we again emphasize that in underdeveloped countries special research should be undertaken for the simplification of complicated technology and of complex type of modern tools and equipments.

" As we saw before, this is evident from the simplified version of the Harrod-Domar formula, viz. $g = \frac{S_t}{Y_t} \times \frac{O}{C}$.

Study of Development Finance with Special Reference to Deficit Financing

Proper understanding of the concept of economic surplus facilitates the study of development finance. This is because once we are aware of the existence of potential economic surplus, we shall try our level best to tap it and utilize it effectively during the process of planning for achieving rapid economic development. A systematic mobilization of the potential economic surplus,[44] hidden in the country's economic structure, should be undertaken as this serves as the main building block upon which the whole edifice of development finance rests. A bold plan can be executed in an underdeveloped country if there are strong evidences of hidden or potential economic surplus and if bulk of this surplus can be tapped and utilized in a proper manner.

In a predominantly agricultural country, trying to industrialise by means of planning, agricultural surpluses—potential or newly created—play a vital role in the process of economic growth. In most cases surplus farm products would provide food, clothing etc to the people newly employed in the additional development projects and industrial units which have been undertaken during the planning period.[45] If most of the workers in the "simple capital type" of development projects (such as irrigation works,

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[44] As we have already seen potential economic surplus constitutes a potential source of saving in an under-developed country but it is partly wasted in the conspicuous outlays of upper income groupes, and partly for maintaining the unproductive workers like money-lenders, redundant civil-servants, absentee-landowners and lazy village gossip-mongers.

[45] See Uses of Agricultural Surpluses to Finance Economic Development in Under-developed Countries—Commodity Policy Studies No. 6, F.A.O., June, 1955.

roads etc.) are recruited from the army of under-employed
farm population, the problem is easier. These newly em-
ployed workers were consuming food and maintaining them-
selves before they were put to work in the development
projects. How was that possible? It was possible because
the "productive" agriculturists were supporting their "un-
productive" brethren. In the process of "joint-family
consumption" of farm surpluses the absolutely under-
employed or unemployed (some of them, who spend most of
their time in arranging village religious ceremonies and
other functions or kill their time by taking part in village
gossips, definitely belong to the "unproductive" class of
workers) brethren draw heavily from the potential agricul-
tural surpluses of those who actually work from dawn to
dusk in the farms. This potential surplus was wasted, from
the point of view of national economic development, when
the productive workers were feeding their unproductive
brethren. But this potential surplus is a potential form of
saving and if properly utilized it can solve both the problem
of rural under-employment and the task of capital forma-
tion. The Indian Planning Commission has fully grasped
this point. In India's five year plans we find that Com-
munity Development Projects, irrigation works, road-
construction and other simple capital projects play a vital
role and facilitate capital formation during the process of
economic development. This capital formation is also being
partly financed by utilizing the potential economic surplus
which exists because of the joint family system in the
villages where usually the "productive" labourers maintain
their "unproductive" brothers and sisters. But it should be
remembered that this process of utilization of potential farm
surpluses, for maintaining the newly employed (and previous-
ly under-employed in the villages) labourers working on

simple capital projects, would succeed provided it can be assumed that the workers who remain in the agricultural sector continue to produce at least the previous level of output and do not change their previous level of per capita consumption. These assumptions may not be true in an underdeveloped country like India where the per capita consumption of the "productive" workers in the agricultural sector is low because in most cases they have to support their "unproductive" relatives. If these "unproductive" workers are withdrawn to simple capital projects it is quite likely that the "productive" workers, who remain in the farm, would consume a slightly greater portion of the farm products. How can we counteract this tendency? The long period solution lies in the expansion of domestic production for which a thorough reorganisation of agriculture is necessary. The immediate remedy will be found in some sort of foreign help or in some measure of compulsion. Compulsory surrender of "potential farm surpluses" by the "productive" agriculturists may not be achieved with cent per cent success in democratic underdeveloped countries like India. Therefore it would be useful if farm surpluses of foreign countries could be obtained either as grants or as long-term loan on concessional terms. The latest report of the ECAFE shows that recently there has been an agricultural prosperity in the ECAFE region and countries like Burma and Thailand are faced with the problem of marketing their farm surpluses. Such surpluses could be effectively utilized by those underdeveloped countries in the ECAFE region which are planning for accelerated economic growth. The surplus farm products would aid additional effort for rapid economic growth in the underdeveloped countries if they are profitably utilized in a number of additional "simple capital type" of development projects. In such cases,

a part of the resources, required for rapid economic development and capital formation, is coming from the surplus farm products in two ways. In most cases these farm surpluses could be directly utilized for feeding and maintaining the workers while they are on training and also for paying them in kind when, after the completion of training, they are actually working on the projects. In a few special cases, where payment in kind may not be accepted, finance may be obtained through the disposal of farm surpluses in the domestic markets. There is, however, a potential danger in the utilization of foreign farm surpluses for domestic economic development as this would affect prices of domestic farm products. But it should be remembered that with accelerated economic growth per capita income would increase and standard of living would improve. As a result of which per capita consumption of food (both quantitatively and qualitatively) would go up and therefore increased supply of farm products, both from domestic expansion of agricultural production and from foreign grants and loans, would eventually match the increase in food consumption. In the meantime the fall in prices of domestic farm products may be prevented through the pursuance of a vigorous agricultural price support policy by the government.

It is quite true that potential economic surplus (specially farm surpluses which are wasted in the unproductive consumption of virtually unemployed persons), if properly mopped up, can become the main key to development finance. But a study, dealing with the main sources of potential economic surplus and its systematic utilization, tells us only about the general nature of development finance and not about its constituent parts. We now come to the constituent elements of development finance. The sources of finance for development purposes are

four: foreign aid, taxation, domestic borrowing and deficit financing. First let us turn to foreign borrowing or outright aids for development. Most of the underdeveloped countries are living in a vicious circle of low productivity, inadequate education, poor health and very little capital equipment. Foreign aid might act as an effective starter but, all by itself, it would not be able to break the vicious circle. For piercing the circle, in an effective manner, heroic effort and discipline in the domestic front are absolutely necessary. Economic development cannot be implanted from outside simply through foreign aid. Outside sources of funds will not accelerate economic development unless in the underdeveloped countries there is fundamental changes in both the mental outlook and the technical knowledge and craftsmanship of the whole population (and specially of the rural community). The various facets of the development plan should be carefully coordinated so that the masses are provided with the decent standards of health, of education, and of social security. Simultaneously a public spirit and a sense of responsibility should be injected into all sections of the population. The process of economic development in the underdeveloped countries can be compared with the arduous method of climbing a stiff hill. Foreign aid can produce the initial impetus which will make the climb seem somewhat less painful in the beginning but it subsequently there is an absence of an indigenous and articulated movement, the climbing process would end abruptly.

Most underdeveloped countries have bitter experiences of imperialist domination in the recent past and, therefore, they usually have considerable doubts as to the purposes of foreign aid, whether technical or financial. Therefore the governments of most of the underdeveloped countries would

be prepared to accept foreign economic assistance if it is offered without any strings attached. From this point of view the most suitable type of external assistance would be foreign loans given on a purely commercial basis though, in most cases, for such loans rather a high rate of interest has to be paid by the borrowing country. Therefore too much reliance should not be placed on foreign loan of the commercial type as its price is too high and also because of subsequent complexities in making interest payments in the face of balance of payments difficulties.

What next? We now turn to taxation as a source of development finance. Taxaton is, perhaps, one of the main instruments for mobilizing domestic savings in under-developed countries with low volumes of national income. But in some of the underdeveloped conntries the non-monetized sector is usually quite large—for instance a large number of village folks may be accustomed to a simple barter system which means that they are outside the money economy. If in addition to this most of the people are either close to the subsistence level or even below the level, mass taxation is almost impossible under a democratic set up and is also less important for our purpose because of its anti-developmental character. The ordinary peasants of underdeveloped countries cannot be taxed heavily because their per capita incomes and standard of living are precariously low. It is also difficult to obtain a greater share of tax revenue from the salaried middle class as, in most cases, the existing tax burden, is quite high and in particular cases (as in India) the task is more difficult because of an inflationary impact on the economy during the process of economic development. A rather heavy tax burden on the middle class would prevent further expansion of this class and if middle class is gradually squeezed out, not only the main stabilizing

force in capitalism would peter away but the main source
of semi-skilled, skilled and professional workers would also
disappear. If we cannot tax heavily the ordinary peasants
and the salaried middle classes during a planned process of
growth in an underdeveloped capitalist economy, how
should we mould our fiscal technique so as to suit our
purpose?

In determining an appropriate taxation programme for
underdeveloped countries in the process of accelerated
growth, one should bear in mind that the basic need is to
increase the coefficient of domestic saving. One method of
achieving this would be to mould the fiscal instruments in
such a way that a substantial proportion of private invest-
ment takes the form of reinvested earnings by business firms
which retain them rather than distributing them. In other
words with the help of a reduction or deferment of the taxes
on reinvested earnings, capital formation in the private
sector would be facilitated and domestic saving would be
augmented.

The fiscal instruments should not only be adjusted, in
an effective manner, for encouraging saving by entrepre-
neurs before their incomes flow into consumption, but taxes
should also be used directly for curtailing consumption of
high income groups on luxury and semi-luxury items. An
expenditure tax,[44] with high exemption limit, should be
introduced so that only the better-off class is affected and
not the whole population. Mr. Kaldor, the chief proponent
of the "expenditure tax formula" believes that "if the same
amount of money were raised from the well-to-do by
means of an expenditure tax as is raised by income tax,
the consumption of the rich would be bound to be less.

and their savings correspondingly greater." If this is so, then the expenditure tax formula would considerably aid the process of raising of the coefficient of domestic saving in proportion to the growth in the gross product of the country in the process of development. An expenditure tax, with high exemption limit, not only facilitates the process of economic growth by reducing capitalist's consumption and by increasing domestic saving but is also helpful in another way. By reducing the demand for imported luxuries (mostly consumed by the upper income group) it considerably mitigates the worries connected with an adverse balance of payments.

The introduction of expenditure tax, with high exemption limit, would undoubtedly produce a constraint on the consumption of higher income groups and broadly speaking its ultimate effects would be somewhat similar to those of additional taxation of a wide range of luxury and semi-luxury goods. But by emphasizing only an expenditure tax (with high exemption limit) or by directly introducing higher taxation of luxury and semi-luxury products alone, it would be difficult to raise sufficient revenue for the financing of a bold plan during the development process. Therefore the expenditure tax should supplement the progressive income tax. But the progressive income tax formula should be so adjusted that the higher rates of personal income tax are accompanied by some relief for earnings which are reinvested.

Underdeveloped countries, during the process of growth, should also depend on indirect taxation of both foreign trade[47] and domestic trade. They should rely more

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[47] See "Preliminary Study of the Technique of Programming Economic Development" (United Nations Economic and Social Council, 1953) Part I, ch. 1.

on import and export duties. Firstly, from the technical cum administrative point of view import and export duties are definitely superior to excise taxes and sales taxes (levied on domestic trade). This is because import and export duties can be easily levied at a few basic points of the economy where we have a large concentration of wholesalers who usually handle the bulk of the imports and exports. But in the case of underdeveloped countries the cost of collection of excise taxes and sales taxes is much greater because the gross product comes from millions of small producers and is sold through millions of trade channels. Secondly export and import duties do not bear the characteristics of "mass taxation" and therefore we should not regard them as anti-developmental fiscal instruments. But heavy taxation of domestic trade will mean higher rates of excise duties and sales taxes on almost all the important categories of domestic product. Such taxes would, therefore, fall on the mass of people who are either on the subsistence or below the subsistence line and would be detrimental to the development process. In otherwords, both from the administrative and developmental point of view it is better for the underdeveloped countries to rely on a heavy dose of indirect taxation on foreign trade and a mild dose of indirect taxation on domestic trade.

But it may so happen that both the volume of exports and imports, as compared to the national income, are quite low which would mean that the tax revenue from export and import duties would be correspondingly low. For instance in India the volume of exports is about 9 per cent of national income because the major portion of the gross product produced is consumed by her own people and because of the "underdeveloped" nature of some of her major export industries.

Due to a low volume of exports, imports have to be artificially adjusted to a correspondingly low level or otherwise there would be balance of payments difficulties. In such cases, in spite of full emphasis on indirect taxation on foreign trade, sufficient tax revenue may not be forthcoming. But that does not mean that we shall give undue emphasis on excise duties, sales tax and other types of taxes which fall heavily on all important items of domestic trade and increase the hardships of a great majority of people who are on a precariously low standard of living. If so, then what type of fiscal solution should be applied in such cases?

Where export and import duties do not raise sufficient revenue, and excise duties and sales taxes are not pushed to extreme points, the basic solution lies in the introduction of a special type of poll tax to be levied directly from the self-sufficient or more-than-self-sufficient farmers. The number of "more than self-sufficient" farmers would increase with the progress and implementation of development programmes in the rural and urban areas because such projects would reduce the pressure of population on land and would improve the technique of farming. Poll tax is a prominent member of the family of land taxes and can be effectively used for tapping the farm surpluses of "above the average" farmers during the process of development. The poll tax is a specially suitable fiscal instrument for raising substantial tax revenue in those underdeveloped countries where with the process of industrialisation the agricultural sector undergoes rapid transformation. Such a transformation and reorientation of agriculture increases the volume of farm surpluses and consequently poll tax yields are substantially expanded.

Thus under taxation as a source of development finance we specially emphasize an expenditure tax (with

high exemption limit) and a special type of poll tax (directly levied on farmers enjoying farm surpluses). These two taxes also have the special merit of tapping a substantial amount of potential economic surplus which can be used in a planned manner during the development process. Expenditure tax, with high exemption limit, effectively mobilizes the potential economic surplus which is usually wasted by the upper income groups in the excess consumption of domestic and foreign luxury items and in the acquisition of ornaments and jewelleries. A poll tax on farm surpluses effectively taps the potential economic surplus in the agricultural sector.

We now turn from taxation to domestic borrowing. The success of a domestic borrowing programme depends on the volume of available savings and on the institutions and methods which facilitate borrowing. In the beginning of the development process the volume of domestic saving would be naturally low in an underdeveloped country because of the vicious circle of poverty. Thus in the initial stages of a programme for planned development, domestic borrowing would not provide a substantial amount of development finance. But things would improve with the progress of the development programme as the two main sources of domestic saving would show better results.

What are these two main sources and how do they yield more saving under a programme of accelerated economic development? Profit is a major source of saving and under a planned programme of industrialisation in a capitalistic underdeveloped economy the private sector is as important as the public sector. Every step should be taken for the expansion of the private capitalist sector in a way which would facilitate the emergence of a class of profit-making entrepreneurs who are usually more thrifty than the

landlords, the wage-earners and the salaried middle classes. The profit maker saves more than other people because he knows that the quantum of money, which he possesses, determines his power and position. The second source of saving would be found in the peasant sector of the economy and it becomes more prominent as farm surpluses increase under the process of planned economic development. For tapping this saving special rural borrowing campaigns must be undertaken and a chain of rural savings banks, or other specialised institutions for mopping up rural savings, should be established in the villages. People save more if savings institutions are within their easy reach. The borrowing programme would be more successful if savings institutions and other facilities are pushed right under the individual's nose. For this post office savings, co-operative village community savings, friendly savings societies and street savings groups, among others, should be properly organised.

Thrift and saving's habit may be accentuated by means of propaganda. People save more if they are fully convinced about the necessity and urgency of cultivating frugal habits. Mobile savings bank units should be started in the rural areas which would reach the doors of the peasants. These mobile units should be attached to the mobile village post offices and propaganda units. The combined mobile unit, by means of film shows, distribution of pamphlets and booklets, display of posters and wall papers and door to door propaganda regarding the achievements of the plan and the success of the development programmes, would catch the imagination of the people and infuse them with zeal and enthusiasm. If people are persuaded in this manner they would deposit more money in the mobile savings banks and in other savings institutions close to their dwelling places. The saving's spirit can be further accelerated if the postal

authorities issue special tokens and savings certificates commemorating the fulfilment of the outstanding targets of the development plan.

If an underdeveloped country undertakes a bold and daring development plan, the usual sources of finance may not suffice and consequently more attention has to be given to that extraordinary technique of development finance which is known as deficit financing. The unusual method of financing the development programme is by incurring deficits. Deficit financing, in the context of underdeveloped countries, refers to the creation of new money for filling up the gap between planned expenditure and estimated receipts. If a courageous and rigorous outlook is adopted for the development plan and if daring and generosity instead of parsimony prevail, the development finance programme should be a bold one and deficit financing should occupy a pivotal position in that programme.

In many quarters it is claimed, often on the basis of reasoning and evidence of incredibly low quality, that deficit financing, because of its inflationary potential, is ten times more dangerous than financing by means of domestic borrowing. Such writers make a fundamental mistake because they give more attention to the pattern of existing saving rather than the volume of potential saving when they discuss deficit financing vis-à-vis domestic borrowing.

The main opposition to a bold programme of deficit financing, in the context of planned economic development in an underdeveloped country, stems from a peculiar misconception. In the initial stages of planning in an underdeveloped country there is every chance that a too ambitious domestic borrowing programme would fail simply because in the beginning of the development process the coefficient

of domestic saving is too low. If this happens and the planners resort to deficit financing then it is customary to overemphasize the inflationary impact of such a programme and to spot red light where actually there is only a yellow signal.

From the point of view of deficit financing the most important thing is the generation of economic surplus during the process of development. This is because the volume of saving directly depends on the economic surplus currently generated in the economy. During the planned process of development in an underdeveloped country surplus labour and unemployed resources would be utilized by the entrepreneurs and the government and this would facilitate the generation of a greater volume of economic surplus and consequently the volume of saving would be augmented. If this saving is ultimately mobilized and utilized in a proper manner then deficit financing, in the initial stages of planning, can be regarded as process of advanced borrowing from the potential saving of the community.

To clarify our point of view we give below an illustration where we indicate side by side two hypothetical development plans. These two plans are almost identical. There is only one point of difference which is connected with the patterns, which savings assume, in the financial counterparts of both the plans. In the first plan we shall show that the deficit between government expenditures and estimated receipts is mostly covered by the issue of bonds and securities to the public (which is an indication of the success of the borrowing programme during the planned process of development). In the second plan most of the deficit is covered by the issue of new notes (perhaps due to an unsuccessful borrowing campaign).

ILLUSTRATION A

I. GOVERNMENTAL ACCOUNTS IN THE PLANS

| *Financial Counterpart of the 1st Plan*		*Financial Counterpart of the 2nd Plan*	
Government Expenditure ...	Rs. 6,000 crores	Government Expenditure ...	Rs. 6,000 crores
Estimated Receipts by the Government ...	Rs. 4,000 crores	Estimated Receipts by the Government ...	Rs. 4,000 crores
Gap (or deficit) ...	Rs. 2,000 crores	Gap (or deficit) ...	Rs. 2,000 crores
Bonds issued to the public	Rs. 1,600 crores	Bonds issued to the public ...	Rs. 400 crores
New money created ...	Rs. 400 crores	New money created ...	Rs. 1,600 crores
Bonds and New money fully cover the gap		Bonds and New money fully cover the gap	

ILLUSTRATION B

### II. PRIVATE SECTOR ACCOUNTS IN THE PLANS

	First Plan		Second Plan	
Current Income	...	Rs. 7,000 crores	...	Rs. 7,000 crores
Current Expenditure	...	Rs. 4,000 ,,	...	Rs. 4,000 ,,
Gross Saving	...	Rs. 3,000 crores	...	Rs. 3,000 crores
Private Investment	...	Rs. 1,000 crores	...	Rs. 1,000 crores
Net Saving	...	Rs. 2,000 crores	...	Rs. 2,000 crores
Held in the form of bonds		Rs. 1,600 crores		Rs. 400 crores
Held in currency notes		Rs. 400 ,,		Rs. 1,600 ,,
	Shows the Pattern which savings take		Shows the Pattern which savings take	

A first look at the plans (given in our illustrations) would make most people think that the Second Plan, where the deficit is covered mostly by the creation of new notes, is more hazardous than the First Plan specially from the point of view of inflationary effects. But a superficial analysis is not enough for this purpose. Let us probe deeper into the problem. We find that in each one of the plans (in our illustrations) the net saving generated is equal to Rs. 2,000 crores. This net saving, which mainly comes from the creation of economic surplus during the process of growth, is the fundamental building block of any process of development finance. Whether this saving is kept in the form of notes or bonds is a matter of secondary importance. The most important point is whether the additional amount of public expenditure, on development projects, is equal in value to this net saving. If this is so and if most of the public investment is on productive projects, with well-adjusted maturities, there would be only a mild dose of inflation during the development process. In most cases the primary cause of the inflationary process would be found, not in the pattern which savings ultimately assume, but in the greater degree of inelasticity in the supply of essential consumption goods. If the supply of food and cloth is elastic, one should not worry too much about the inflationary impact of the deficit financing programme. But it is difficult to achieve absolute elasticity in the supply of food and cloth during the process of expansion and growth ; therefore some amount of inflation might result from the deficit financing technique of financing development projects. But the impact of this inflation can be minimized to a great extent if most of the created money is spent on a bag of properly selected, productive public investment projects with well-balanced maturities. It should be remembered that mild inflation

goes well with the planned process of accelerated economic growth. Some inflation is helpful to the process of growth, provided it is kept within bounds.† Strong reasons can be put up in support of this view point. Firstly, mild inflation facilitates the process of shifting labour units from a position of underemployment to more productive occupations. The transition of man power from low productivity jobs to high productivity activities can be achieved in a smooth manner if the incentive of higher rewards exists in the more productive activities. This incentive of higher remunerations is absent when prices are either constant or falling; but it is quite prominent in a period of mild inflation when it can be expected that marginal profits would exceed the marginal costs of production. Secondly mild inflation is helpful to development planning because it increases agricultural output by means of higher price-incentives. Economic development necessitates that the produce of farmers per head must expand as this would provide a growing surplus per head from which the non-farmers could be fed during the process of growth and expansion. A moderately rising price level is conducive to the process of industrialisation because it increases the food stock necessary for maintaining the urban population. Lastly mild inflation, by raising profits, stimulates capital formation in the private sector during the process of economic growth. If the economy has a good number of risk-taking and bold industrial capitalists, who invest a large portion of inflationary profits in fixed capital, then it is obvious that mild inflation would accelerate capital formation.

Thus an ambitious development plan would require a bold programme of deficit financing and one should not be unnecessarily worried about it if proper safeguards are adopted. One should not be unusually perplexed if mild

inflation results from the process of deficit financing of development programmes because a moderately rising price level facilitates economic development. Moreover, if prices are rising at a rate less than the rate of interest, there is almost nil chance of making profit from speculative transactions. In fact, we shall have all the advantages of inflation for capital formation and shall avoid the hazards of speculative extravagances, if prices rise on the average by three to four per cent per annum.

To sum up, if the usual techniques of development finance are inadequate for financing a development plan with a daring programme, we should—without hesitation—switch over to deficit financing which is a process of advanced borrowing from the potential savings of the community. If the development programme consists of productive and well-balanced projects and if proper measures are taken for increasing the supply of food and cloth, side by side with the process of reinforcing the capital base of the economy, there would only be mild inflation. Such an inflationary process would definitely be helpful in the initial stage of industrialisation and economic development which is always somewhat painful. But this inflation would peter out of its own accord, after a suitable time lag, because the additional output of consumer goods, made possible by the initial process of capital formation, would ultimately flood the market.

VII

CONCLUSION

From our analysis of planning technique it becomes evident that planning is a detailed process and it involves complicated programming specially if the aim is to achieve accelerated economic development within the shortest period

of time. Therefore, unless one fully understands this complex method of programming, he does not really understand planning. The mechanics of planning can be appreciated if our knowledge of economic theory is supplemented by practical experience and foresight. A plan is not a static economic framework but it is a dynamic picture of a nation marching forward in all walks of life. Therefore plans are not chalked out "once and for all". Perfect plans are seldom to be found. Plans have to be adapted to unforeseen circumstances and original mistakes have to be corrected in course of the execution of the plans. Thus the working out of an economic plan depends on the method of successive approximation.

Recently more attention is being paid to development planning. Here the planning process is used as a technique of programming economic development so as to achieve accelerated economic growth in underdeveloped countries. In underdeveloped economies, road blocks confront us on all known avenues to advance. Shortage of capital, lack of technical personnel, countrywide poverty, with the consequence of a low volume of effective demand, a large labour surplus—these are the fundamental obstacles to progress in underdeveloped countries.— If these obstacles are to be overcome, and if industrialisation and modernisation of agriculture are to be achieved, it is essential that the underdeveloped countries break new ground. That ground will be found in development planning.

The study of the technique of programming rapid economic development is facilitated by the knowledge and clear understanding of the input-output analysis, linear programming method, and growth economics. This is because the central theme of a development plan is the determining of investment needs by sectors. Actually speaking, the

fundamental objective of the development programme is to provide some idea of the composition of investment, so that the economy can attain an appropriate rate of growth. The knowledge that in a concrete case of a given economy, a specific rate of growth would require a certain composition of investment (over a definite period of time), undoubtedly, provides us with a powerful instrument for planning development programmes.

It is a well known fact that different segments of the economy are held together by bonds of mutual support. Therefore it is often emphasized that all sections of the economy must keep as much in step as possible. Development planners cannot proceed with the programme of industrialisation in an underdeveloped country if productivity in agriculture is not substantially increased. Thus an overall balance between industrial growth and agricultural development is of crucial importance from the point of view of development plannning.

But if the economic plan wants to achieve accelerated economic growth within a short period of time, it must have a bold and daring outlook. In such a case it would not be judicious to maintain a definite balance between the rates of growth of consumption goods industries and capital goods industries. A greater emphasis on heavy industries is required as this would strengthen the forces leading to the domestic capital formation and would create a strong capital base for future economic development. Therefore in the initial stages of planning, potential economic surplus should be wrested from current unproductive consumption and should be mostly invested in those capital projects whose returns will go where they will be used for further investment, so as to produce an indefinite process of capital formation and accelerated growth. For financing such a

bold development plan in an underdeveloped country the ordinary methods are usually inadequate. Therefore the financial experts should bring out from their tool box the extraordinary technique of deficit financing for covering the gap between total expenditure and total revenue during the planning period.

PART II

SPOTLIGHT ON PLANNING IN INDIA

(With Special Reference To India's First And Second Five Year Plans)

SPOTLIGHT ON PLANNING IN INDIA

I

INTRODUCTION

Planning for achieving accelerated economic growth was first thought of in a practical manner in India in 1938. In that year the National Planning Committee, under the Chairmanship of Shri Jawaharlal Nehru, was appointed by the Indian National Congress. The National Planning Committee collected valuable materials but, due to political disturbances in India during the period of the Second World War, its work was seriously hampered. Therefore, mainly because of adverse circumstances, the National Planning Committee was unable to prepare a comprehensive blue print of an economic plan for India. But in January, 1944, eight Indian capitalist businessmen chalked out a " Plan for the Economic Development of India ", popularly known as the " Bombay Plan " which envisaged planning within the capitalist economy for boosting up standard of living and per capita income of the Indian people within a definite time-period.

The Bombay Plan aimed at doubling of the Indian per capita income in 15 years and for this purpose it wanted to achieve a two-fold increase in agricultural output and a five-fold increase in industrial output during the planning period. Thus it is evident that a programme of intensive development of industries constituted the keystone in the arch of this plan. Basic industries were emphasized more than the consumption goods industries in the initial period of planning. This is because the authors of the Bombay Plan believed that the heavy-key industries constituted "the basis on which the economic superstructure envisaged in the plan would have to be created." This clearly proves that even Indian capitalist planners appreciated the basic logic of the Russian technique of planning with unbalanced

growth"[1] in which the main strategy is to place primary importance to the basic heavy industries and to keep consumption at the "rock bottom level". But the Bombay Plan (as also India's Second Five Year Plan) made no attempts blindly to fit this planning strategy of a "siege" economy into the general framework of a democratic and popular plan. The Bombay planners were determined to step up the living standards of the Indians as quickly as possible; therefore they saw to it that the disproportion between capital goods industry and consumption goods industry did not reach high heights. Therefore it was proposed in the Bombay plan that small scale and cottage industries together with the factory industries would increase the consumption goods production in a proper manner during the planning period. In other words, the Bombay plan accepted a modified and milder version of the Russian strategy as its basic planning technique. It will also be evident in the course of our discussion that the Bombay Plan contained in an embryonic form the basic strategy proposed in India's Second Five Year Plan.

Thus the Bombay Plan was a courageous first step towards planning in India. Its overall approach was broadly correct. But its main drawback was in its failure to discover a set of targets which were not only optimal but also mutually consistent. The authors of the Bombay Plan were mostly practical businessmen and therefore they failed to probe deeply into the proper methodology of planning. Consequently they did not give serious thoughts to the process of finding out simultaneously the right size of target for each sector, taking full account of its dependence on other sectors and of other sectors on it. Because of this basic defect and because of the absence of a proper set up for the fulfilment of an economic plan, no serious attempts were made for the implementation of the Bombay Plan, though it served as the main source of inspiration to the pioneers of planning in India.

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[1] For a detailed analysis of this technique see Part I, Section 5.

A REVIEW OF INDIA'S FIRST AND SECOND FIVE YEAR PLANS

Since independence, the Indian Government has paid a good deal of attention to development cum social welfare programmes. For the proper co-ordination of these programmes and for achieving the task of accelerated economic development for the Indian economy, a proper emphasis on overall economic planning was a necessity. Therefore the Indian Planning Commission was appointed in March 1950 for estimating the available resources in the country and for formulating a comprehensive economic plan which would utilize the resources and would set the output-goals in such a manner that rapid economic development would result during the planning period. The final report of the Planning Commission was presented to the nation in December 1952. It contained the detailed framework of the First Five Year Plan for the years 1950-51 to 1955-56. The First Plan originally announced an outlay of Rs. 20,690 million over a five-year period. Subsequently, due to the undertaking of additional programmes the outlay was revised to Rs. 23,560 million. This was rather modest because it represented a little more than 4 per cent of India's national income. Such a modest scale of expenditure was unable to boost up the rate of investment by a significant amount and, as a result of this, the acceleration of the process of economic growth was not upto expectations.

The targets of investment and output goals for increased production presented in the First Five Year Plan appeared modest in comparison with the aims and objectives put forward for the next twenty years, but quite bold compared to past trends. The redeeming feature of the First Plan was that it endeavoured to bring about a harmonious reconciliation between the competing claims of different sectors of the economy so as to secure the maximum benefit from the resources available during the planning-period.

With a population which was predominantly agricultural, it was obvious that India's First Plan would give the highest priority to Agriculture, Rural development and Power and Irrigation projects. Agriculture and Irrigation (including multi-purpose projects) accounted for nearly 44 per cent of the total outlay of the First Plan ; about 24 per cent was set apart for Transport and Communications and about 23 per cent for Construction, Rehabilitation and Social Services. At the tail end of the list of planned expenditures for the public sector Industries and Mining accounted for only 8 per cent of the total outlay.

Topmost priority has been given to agriculture as it provides some sort of employment to 70 per cent of the Indian labour force and as it is impossible to raise the standard of living of Indians without introducing radical changes in the villages. Moreover, the Planning Commission was of the opinion that the stepping up of agricultural productivity would definitely mitigate the strain on India's balance of payments and would help the Government to preserve its slender foreign exchange reserves. Another point is also important in this connection. With the concept of the capital-income (output) ratio,[2] it can be shown that in the first stage of planning in an under-developed country agricultural development brings about a slightly higher rate of growth of national income than other types of investment. In the First Plan we find that the Planning Commission has assumed that the capital-income ratio is 3 to 1 for the Indian economy as a whole. Broadly speaking, this means that an investment of Rs. 3 million is required to provide productive capacity for an annual increase of net income by Rs. 1 million. In agriculture, however, the capital-output ratio

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[2] See Part I, Section IV for the use of the capital output ratio concept in connction with the Harrod-Domar formula. It should be noted that in the first plan report the capital-output ratio was taken at 3 : 1 with a time lag of two years between the increase in investment and the increase in output.

is apparently much lower i.e. its reciprocal (the productivity ratio) is higher. This facilitates, to some extent, the process of growth of income in the initial stages of planning. Calculations, based on rough approximations, show that a capital-income (output) ratio slightly below 2 to 1 has been assumed in the agricultural sector during the First Five Year Plan period. For finding out this ratio we have to make a comparison of the proposed expenditures under the plan for agriculture, rural development, community projects and irrigation (including the multi-purpose projects) with the expected increases in the net value of agricultural production.

Generation of electricity and expansion of transport services have been emphasized as they constitute the two main building blocks of the development plan. This is specially true because the development of transport and power provides a substantial amount of external economies which facilitates the process of growth during the Plan period. The outlay on social-services, including health and education, would also pave the path for building up an "welfare state" during the process of accelerated development.

As the Government's resources would be largely used up for agriculture, rural development, irrigation, power, transport and social services, therefore only a small part of the planned expenditure has been set apart for industries and the responsibility for industrial progress has devolved mostly on private enterprise during the First Five Year Plan period. The State would, however, complete the industrial projects already started and would also set up new units for the manufacture of vital materials such as iron and steel and heavy electrical equipment.

Looking broadly at the progress of the First Plan, we find that its main achievements were—control of the price level, expansion of both agricultural and industrial production and establishment of a stable economy. Coming to details we find that (in the first 3 years) expenditures for irrigation, power and transport services were slightly below

the average annual rates envisaged in the plan. But expenditures for agriculture and community development definitely lagged behind and those for industry were *substantially below the average annual rate implied in the* plan. To make up these short falls, the annual rates of expenditure in 1954-55 in all the sectors except industry were budgeted to surpass markedly the average rates in the plan. But unfortunately these budget estimates could not be fully realised and it is presumed now that a short-fall of 12.5 to 15 per cent took place in the government expenditure under the plan for the five-year period. The Second Plan Report observes that "there would be a short-fall of about Rs. 3,600 million in plan expenditure in terms of the revised total outlay of about Rs. 23,560 million".

In the table given below the annual average outlays incurred in specific sectors for the first three years and the budget estimates for the fourth year (1954-55) are compared with the average annual rate of expenditures proposed in the plan.

Table Showing the Annual Rate of Expenditure Under the First Plan
(Public Sector)

Main Heads of Expenditure	First Plan annual average		1951/52 to 1953/54 annual average		1954-55 Budget Estimate	
Agriculture and Community Development	Rs. 747 million		Rs. 359 million		Rs. 899 million	
Irrigation and Power	Rs. 1,234	,,	Rs. 1,000	,,	Rs. 1,675	,,
Transport and Communications	Rs. 1,072	,,	Rs. 747	,,	Rs. 1,470	,,
Industry	Rs. 356	,,	Rs. 114	,,	Rs 330	,,
Social Services and Rehabilitation	Rs. 979	,,	Rs. 662	,,	Rs 1,168	,,
Others	Rs 110	,,	Rs. 67	,,	Rs 175	,,
Total	Rs. 4,498 million		Rs. 2,949 million		Rs. 5,717 million	

Sources: (1) Five Year Plan Progress Report for 1953-54;
(2) Indian Budget Estimate for 1954-55.

The First Five Year Plan prepared the stage for a period of sustained and vigorous effort to rebuild the Indian economy and to accelerate its economic development. The The First Plan prepared the ground for a more ambitious of existing capacities in Indian industries but was responsible for setting before the country a specific goal, though a modest one, for the process of industrialisation and economic development. It was found that the planned target could be best achieved under the conditions of mixed economy. Thus the First Five Year Plan ushered in a period of industrial renaissance in India. But, for facilitating future industrial expansion, the First Plan's main objective was to add considerable amount of strength and vitality to Indian agriculture. The relatively greater emphasis laid on agriculture substantially increased agricultural production during the First Plan period and ultimately helped to raise the tempo of development in other spheres.

The First Five Year Plan ended in March, 1956. Broadly speaking it has done its job in a laudable manner. The First Plan prepared the ground for a more ambitious and bolder plan—the Second Five Year Plan. In general conception, the Second Plan, with its emphasis on higher productive capacity, employment, living standards and national income, definitely measures up to the people's needs and aspirations. The bold and daring output-goals of the Second Plan would produce the momentum that would enable the economy to march ahead at a rapid pace. In this way the essential objective of securing "rapid advance along democratic and egalitarian lines" would be achieved within a short period of time. The fulfilment of this fundamental objective would mean a sizeable *increase* in the national income, rapid industrialisation with particular emphasis on basic and heavy industries, a large expansion of employment opportunities and reduction of inequalities in income and wealth. Let us see how this is proposed to be done in our Second Five Year Plan.

With an outlay of Rs. 48,000 million[3] in the public sector and an estimated investment of Rs. 24,000 million in the private sector during the period 1956-61, the Second Five-Year Plan aims at securing a 25 per cent increase in national income and a rapid industrialisation of the country accompanied by a large expansion of employment opportunities. The rate of investment in the economy is expected to increase from about 7 per cent in 1955-56 to 11 per cent in 1960-61. While providing for the growth of the economy in the Second Plan period, the Planning Commission have also kept in view the long range aspects of the country's development.

The Second Plan commends "perspective planning"— planning which envisages development over 15 or 20 years ahead. After the Second Plan period there will be a continuous stepping up of investment until it reaches 16 or 17 per cent of national income. Through accelerated development on this pattern, it is hoped that national income will be doubled by 1967-68 and per capita national income by 1973-74.

The allocations under major heads of development indicate the relative shift in priorities as between the First Plan and the Second Plan. The Second Five Year Plan accords high priority to industrialisation, specially the development of basic industries. The provision for large-scale industries, including mining, is Rs. 6,900 million, and another Rs. 2,000 million has been provided for the promotion of village and small scale industries. In fact, industries and mining claim 18.5 per cent of the total outlay in the public sector in the Second Plan as compared to 7.6 per cent in the First Plan. These developments in industry and mining require large investments in transport, specially in the development of railway facilities. Transport and communications account for 29 per cent of the total outlay

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[3] Usually in the Indian Plans the estimates are given in terms of "crores" of Rupees; Rs. 48,000 million=Rs. 4,800 crores because the expression "crore" signifies 10,000,000.

in the plan period. The plan provides for an expenditure of Rs. 9,000 million on the railways because the development programme of the railways absorbs 18.8 per cent of the total outlay as compared to about 11.4 per cent in the First Plan.

It has been stressed at the same time that increased production of food and raw materials will continue to receive special attention and that the programmes for development of irrigation and power will be pursued with reference to the objective of increasing irrigation facilities two-fold and the supply of power six-fold in about 15 years. About 19 per cent of the total outlay of the Central and State Governments is to be devoted to irrigation and power and another 11.8 per cent to agriculture and community development. The aggregate expenditure under agriculture, community development and irrigation and power works out at Rs. 14,810 million. Although there is a relative shift in priorities as between agriculture and industry (in the First and Second Plans), increased production of food and raw materials must remain, not only for the Second Plan period but for several years to come, a major desideratum.

Social services take up 19.7 per cent of the total outlay in the Second Plan as compared to 22.6 per cent in the First Plan. Social services are emphasized because one of the important aims of the Indian Government is to build up a " Welfare State " under conditions of a mixed economy. In terms of percentages to total outlay under social services and related items, the allocations to education, health and housing are practically the same as in the First Plan; in absolute terms they are significantly larger.

Of the total expenditure of Rs. 48,000 million in the public sector, roughly Rs. 38,000 million represents investment, i.e. expenditure on building up of productive assets, and Rs. 10,000 million is what may broadly be called current developmental expenditure. The table overleaf shows a rough break up of the two types of expenditure under major heads.

Table showing Major Heads of Expenditure under the
Second Five Year Plan

	Total Investment outlay	(Rs. million) Current outlay	Total outlay
(1)	(2)	(3)	(4)
I. Agriculture and Community Development	3,380	2,300	5,680
(i) Agriculture	1,810	1,600	3,410
(ii) National Extension and Community Development	1,570	700	2,270
II Irrigation & Power	8,630	500	9,130
(i) Irrigation and Flood control	4,560	300	4,860
(ii) Power	4,070	200	4,270
III. Industries & Mining	7,900	1,000	8,900
(i) Large and Medium industries and mining	6,700	200	6,900
(ii) Village and Small scale industries	1,200	800	2,000
IV. Transport and communications	13,350	500	13,850
V. Social Services	4,550	4,900	9,450
VI. Miscellaneous	190	800	990
Total	38,000	10,000	48,000

The most notable feature of the Second Plan is its
emphasis on capital goods and producer's goods industries.
Such an emphasis is beneficial from the point of view of
continuous accelerated growth because the development of
heavy industries widens and deepens the capital base of the
economy. Therefore, in the industrial sector the basic and
heavy industries such as iron and steel, heavy machinery,
cement and chemicals receive a good deal of attention
specially from the point of view of investment-output
targets of the Second Plan. Next, for the fulfilment of the
" humanitarian cum welfare " motive, considerable amount
of funds will be allotted to health, education and other
types of social services. The increase of purchasing power,

as a result of investment in heavy industries and expenditure on social services, will, in turn, increase the demand for consumer goods. It is proposed that the village and small scale industries will meet this demand.

The emphasis on village and small scale industries will bring about a high degree of decentralisation in the industrial sphere and this will be beneficial from the socio-economic point of view. But from the long-run point of view best results will be attained if our village industries are technically assisted with power and machine. This point is of crucial importance and has an important effect on the process of growth. Decentralisation without technical progress is a development process which is rather like the man who, in the process of climbing a wall, slips back one foot for every two he climbs and, as a result of which, his overall rate of climbing is seriously affected. The Second Five Year Plan (Final Report) gives some attention to this problem but does not fully appreciate the point that decentralisation without technical progress considerably retards the process of economic development.

Village and small scale industries will not only meet the demand for consumer goods but will also solve to some extent,—the unemployment and under-employment problems. Small enterprises are labour-intensive and, therefore, possess larger employment potentialities than capital-intensive basic and heavy industries. But the magnitude and the nature of our unemployment problem is such that it cannot be effectively solved by industries and social services. The bulk of new employment opportunities will be found in the Second Plan in construction and in tertiary occupations. In otherwords, developments in the secondary sector (i.e. in the industrial sector) will in turn lead to a larger demand for labour in tertiary occupations and will create new opportunities for small businesses and traders, offering scope for independent work.

The development of secondary and tertiary sectors helps the process of rapid industrialisation and effectively builds up the super-structure necessary for the process of

accelerated economic growth. But the super-structure of economic development will topple down if the sub-structure is not based on solid building blocks. The foundation of the sub-structure was laid during the First Plan period when the primary accent was on agricultural development and rural upliftment. It is essential that the First Plan's *sub-structure is reinforced so that it can bear the tremendous weight of the top-heavy super-structure of the Second Plan.* That is why the Second Plan also emphasizes the various facets of agricultural development and allots a portion of the available funds for providing irrigation facilities to the agriculturists, for providing communication and transport to the farmers for the movement of agricultural produce to markets and for improving the yield of agriculture.

Thus it is evident that the approach of the First Plan was simple mainly because it was concerned with the founding of the sub-structure of the planned process of economic development and for the realisation of this objective the plan placed its main accent on agricultural development with river valley multi-purpose projects and community development projects as parts of it. The Second Plan imparts added strength to this sub-structure so that it can hold tightly and confidently a huge super-structure. The rapid process of industrialisation, envisaged in the Second Plan, becomes an integral part of this super-structure of economic development. That is why the Second Plan is bolder and more ambitious in its approach and presents more complex methodological problems than the First.

III

THE PLANNING TECHNIQUES OF INDIA'S FIRST FIVE YEAR PLAN

Looking at the First Five Year Plan one would find that the bulk of expenditure was devoted to agriculture and irrigation (including multipurpose projects). In fact, agriculture, community development, irrigation and

power accounted for nearly 43 per cent of the total outlay of Rs. 23,560 millions. Therefore comparatively less attention was paid to industries. As a result of which only about .7 per cent of the planned expenditure was meant for investment in the public sector of industry and for financial assistance to the private sector. What is then the economic basis for so much emphasis on agriculture and irrigation and initial neglect of industries?

The economic structure of a country is usually divided into two vitally important sectors—the agricultural sector and the industrial sector. Even in an undeveloped or underdeveloped condition, each sector possesses a development potential which remains dormant or latent because no coordinated attempts are made for rousing entrepreneurial behaviour in the private sector, for undertaking development programmes at the governmental level and for bringing about a change in the mental outlook and technical make up of the peasantry. The low development potential of the agricultural sector in an underdeveloped country accounts for the backwardness of agriculture in such economies. If no concerted attempts are made for removing this backwardness and for raising the development potential, the situation is bound to deteriorate fast due to the interaction of a population-supermultiplier. It should be noted that the population-supermultiplier *indicates the acceleration of population due to the interaction between autonomous population growth and induced population growth. Autonomous forces of population growth boost up the population growth rate in almost all the underdeveloped countries. In the face of autonomous population growth, if the development potential of the agricultural sector remains low and constant, there is further deterioration of income and standard of living and this brings into prominence the induced forces of population growth. Thus the magnitude of the population-supermultiplier continually increases and if no action is taken by the government for population planning and for the shifting of low productive workers in marginal agri-

cultural farms to high productivity jobs in the secondary and tertiary sectors of the economy, there would be a tremendous pressure of population on land and this, by lowering further the marginal productivity of land, would terribly aggravate the poverty of the peasantry. Thus in underdeveloped countries, the physical marginal productivity in agriculture tends towards zero, not only because old fashioned agricultural implements and outdated techniques are used but also due to the action of a vigorous population-supermultiplier and lack of national economic planning. Therefore it is urgent that a thorough reorganisation of agriculture is undertaken for stepping up substantially the development potential of the agricultural sector.

If agriculture is reoriented and large scale farming is introduced then gradually the road blocks hindering industrial development would be cleared. This is because the rate of growth of the industrial sector depends on the trends in the supply of wage goods, especially food. The main reason for a low development potential in the industrial sector and industrial backwardness of an underdeveloped country can be accounted for in terms of a food barrier or a land barrier. In the absence of scientific methods of cultivation, the law of diminishing returns plays a vigorous role in reducing the marginal productivity of agriculture and the population supermultiplier increases the pressure of population on land and thereby the food supply position becomes highly inelastic and the food bottleneck acts as the main barrier against further development of the entire economy. The main point is that, for all round development of the economy and for the progress of the industrial sector, the vital task is the removal of food barrier and this can be effectively done by raising the development potential of agriculture in the proper manner. If this problem is tackled properly then the inelastic food supply curve would attain a considerable amount of elasticity and the stage would be prepared for grappling with the problem of industrialisation. Even in countries like Great Britain, where planning was not undertaken for economic growth,

an agricultural revolution always preceded an industrial revolution because the reorientation of agriculture increased agricultural productivity and released surplus labourers for the industry. This basic relationship between agriculture and industry cannot be ignored when planning is undertaken for an allround development and ultimate industrialisation of an underdeveloped economy. Therefore it is of fundamental importance that in the first stages of planning for accelerated economic growth, which aims at ultimate industrialisation of the economy, proper methods are adopted for boosting up the low development potential of the agricultural sector. This is why in India's First Five Year Plan, the major emphasis was laid on agriculture and irrigation.

One should not blame the Indian Planning Commission too heavily for the sluggish trend of industrial development because their aim was to utilize the unused capacities in the industrial sector until the food barrier was levelled down and the development potential of the agricultural sector was sufficiently high for strengthening the development potential of the industrial sector.

Official statistics reveal that food grains production went up by 20 per cent during the First Five Year Plan period. The index of agricultural production, with 1949-50 as base, stood at 96 in 1950-51. It stood at 114 in 1953-54 and at 117 in 1955-56. This is a positive proof of the fact that the development potential of the agricultural sector was raised during the First Five Year Plan period. Mainly because of this substantial increase in food production, the general economic situation in the country acquired considerable strength and stability. Thus the Second Five Year Plan, which gives greater attention to the task of raising the development potential of the industrial sector, could be undertaken.

Next to agriculture and irrigation we find that Community development projects and the National Extension

Service[4] have a place of vital importance in India's First Five Year Plan. For this also, an economic justification can be given. We have observed before, that, in an under-developed country due to the operation of the law of diminishing returns and the interaction of autonomous and induced forces of population growth, there would be a tremendous pressure of population on land. In fact, an excess population arises when the population actually existing on the land surpasses the number of labourers required to produce the same output without any change in methods. This surplus population lacks regular productive employment during the greater part of the year's normal working time. It is commonly referred as "disguised unemployment" or "hidden underemployment" and exists mainly because of family employment and support in peasant community. For removing this "disguised unemployment" the underemployed workers should be put to work on simple capital projects relating to matters of communication, health and sanitation, supplementary employment, housing and social welfare.

In India "disguised unemployment" is quite prominent in rural areas. Therefore, the community development and rural extension method were utilized mainly for the purpose of providing productive employment to the large surplus of unskilled and semi-skilled labourers in the villages. The land reclamation programme, minor irrigation works, and the road programme which were

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[4] In the National Extension and Community development programme the unit of operation is the development block which represents on an average 100 villages with a population of 60 thousand to 70 thousand persons spread over an area of 150 to 170 Sq. miles. Since the programme commenced in October 1952, in all 1200 development blocks have been taken up, 300 under the Community project scheme and 900 under the National Extension Service Scheme. The National Extension Service Scheme during the First Five Year Plan had a programme budget of Rs. 450,000. The Community development had a budget of Rs. 1.5 million during the First Five Year Plan period.

emphasized under the community development and rural extensions are profitably using the surplus rural population of unskilled and semi-skilled labours and is helping to solve the problem of "disguised unemployment".

The small amount of capital formation which occurs in the development blocks of the community development projects can be easily financed (in real terms) by utilizing the potential saving of the peasant-friends and relations of the community development workers. Potential savings in terms of food grains would be available in peasant families (provided the peasants were maintaining the previous level of output and previous level of per capita consumption) because some of the members who belonged to the category of unproductive workers are subsequently employed in productive projects of the community development and rural extension schemes.

In addition to this economic basis, the concept of the community development projects rests on a solid psychological foundation. Community development and the National Extension methods emphasize the vital role of public cooperation in a democratic plan. By stressing the method of planning from below, they secure the direct collaboration and cooperation of rural people. The village level workers, trained and deputed under the Community development project, and the National Extension workers explain and demonstrate the main objectives of the development programme and thereby win the sympathy and support of the rural folks.

But best results will be obtained if the village level workers and the extension officers refrain from cheap propaganda and concentrate on educating the farmers in breeding better varieties of crops, controlling pests and diseases and in improving the techniques of cultivation. If the village level worker effectively solves some of the basic problem of farmers which cause considerable amount of headaches to them, then, he will definitely win their confidence and make the rural extension programme a success. Therefore, the

village level worker should be properly trained and should be aware of the heavy responsibilities which rest on him.

In India under the old set up, the farmers were oppressed by landlords, money lenders and middlemen for a very long time. As a result of this, their enthusiasms and spirit of public cooperation were considerably dampened. Therefore land reform[5] served as a necessary prelude to successful agricultural extension programme in India's First Five Year Plan.

Under the First Plan, the objectives of land reform were two fold. Firstly to remove those obstacles to agricultural production which arose from the character of the agrarian structure and secondly to create conditions for achieving as quickly as possible an agrarian economy with a high development potential.

The land reform programme under the First Five Year Plan mainly abolished all intermediary tenures and introduced a ceiling on agricultural holdings. The agrarian reorganisation under the First Plan consisted of consolidation of holdings and the development of cooperative farms. This resulted in increasing the zeal for utilizing cooperative methods in agriculture and today we have about a thousand cooperative farming societies functioning in different parts of the country.

Thus India's Community development projects and National Extension Service, introduced during the First Five Year Planning period, should be viewed as a part of a wider programme for agricultural improvement which includes such other things as land reform and reorganisation of agriculture, construction of better roads and communications, cooperative methods, better sanitation and health services and so on. If the development blocks are properly organized and if the village level workers perform their duties conscientiously, then, not only the problem of hidden

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[5] This has also been the case in China, where the excellent Agrarian Reforms effectively opened up the flood gates of popular enthusiasm and created a proper set up for the first five year plan.

|unemployment would be systematically solved but the flood gates of public enthusiasm would be opened up, thereby giving a new look to the rural life. It should be always remembered that economic development brings about spectacular changes on a wide front and this becomes specially evident when brush marks of agricultural extention programme exhibits a refreshing picture of the rural scene.

The fact that economic growth always involves change on a wide front is not only true for rural extension programme but is also significant in the production of electric power and irrigation projects. Development of electric power and irrigation projects create considerable amount of external economies and gives inducement to investment opportunities elsewhere. Development of transport industries also systematically creates those indispensable external economies[6] which enlarge the total size of the market and stimulate new investments.

The relationship between economic development and external economies was correctly viewed by Allyn Young[7] whose studies gave a much wider outlook to the "Marshallian External Economies". Marshall, who invented the concept of external economies, mainly used it in the context of partial equilibrium analysis of the competitive model. Marshall, in fact, made a special study of the external economies accruing to a firm for the purpose of synchronising his partial equilibrium analysis with the phenomenon of increasing returns. It was Allyn Young who pointed out that every increase in aggregate output, by widening the market, yields "external economies" to firms in other parts of the economy and thus gave a much wider scope to the concept. Allyn Young's reinterpretation of external economies was of great help in our understanding

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[6] See T. Scitovsky "Two Concepts of External Economies", *Journal of Political Economy*, April 1954.

[7] See Allyn Young—"Increasing Returns and Economic Progress", E. J., Dec. 1928. See also M. Fleming "External Economies and the Doctrine of Balanced Growth," E. J., June 1955.

of the subsequent cumulative and self-feeding process which results from the initial spurts of economic progress in some crucial sector of the economy. But it should be remembered that Allyn Young mainly used the concept for explaining the actual process of cumulative progress in the mature and "still growing economies". Throughout his analysis Allyn Young simply emphasized that external economies reduced cost, increased productivity and output, which in turn, widened the market further and finally stimulated new investments.

But since then, the external economies argument has been utilized for giving an explanation for the absence of cumulative forces of growth in the relatively stagnant underdeveloped countries. Like Allyn Young, we do not look into that aspect of external economies which is intimately connected with increasing returns cum decreasing costs concept. We concentrate more on the potentialities of external economies for stimulating new investment opportunities.

This new approach towards external economies serves as a major explanation for the lack of proper atmosphere favouring new investment opportunities in the capital-poor underdeveloped countries. Private investors choose those investment projects where the yield per unit of Capital is marginally the highest. They are usually guided in their investment decisions by the immediate values of the products of their investments which they sell in the market. They do not bother much about external economies and the consequent accelerated growth of the economy. Therefore they would not undertake the proper amount of investment for the improvement of transport, irrigation facilities and electricity supply.

But these are the industries which contain the most advantageous types of development projects from the point of view of both external economies and growth process. This is because the investment in electric power, irrigation project and transport increase the output of other industries far beyond the returns shown in the industries receipt books.

The multipurpose river valley projects are to be specially noted in this connection. Proper development of these projects would impart a new look to the underdeveloped and scarcely developed regions and would bring jobs to the doors of immobile groups of rural workers. These projects would also provide the nuclei around which new townships would be developed and new communities would be formed. All these would provide an effective background of external economies and would spurt the process of new investment. Therefore it is clear that, the external economies argument can serve as a justification for the prominence given to transport, electric power, irrigation and multipurpose projects in India's First Five Year Plan. This is, perhaps, why about 51 per cent of the total outlay of the First Plan was meant for the development of irrigation, power, transport and communications.

Transport, irrigation and electricity are also most important from the point of view of long range economic development because they yield spectacular results after a definite time-lag. The interaction of the multiplier with the accelerator, indirectly associated with the development of such industries, becomes more prominent during the last stages of the expansion of these industries. Therefore at the initial stage of development of such industries, inspite of a good amount of external economies being created, the employment potentialities are rather low. That is why inspite of suitable emphasis being laid on transport, irrigation and electricity, unemployment and underemployment problems could not be fully tackled during the First Five Year Planning period.

Turning to the employment aspect, we find that, in the beginning of the First Five Year Planning period about 142 million people constituted our labour force. Of these, urban labour force accounted for 22 millions and rural labour force 120. Of the total labour force, 100 millions were self supporting, three millions unemployed in urban areas and 39 millions unemployed for five to six months in the year in rural areas. This shows that the magnitudes of

Inspite of the best attempts on the part

urban nucmployment and rural underemployment were quite high. On top of this, we have to note that during the First Plan period nine millions (1.8 million a year) more people were added to the labour force due to an increase in population. But only about 5) millions new jobs were offered by the Plan. This explains why the unemployment and underemployment problems caused much alarm during the First Five Year Planning period. For solving the unemployment problem a belated attempt was made when the plan was more than halfway through and an "eleven point programme" for providing unemployment, was announced. To give effect to this programme, the modest outlay of the plan was slightly revised. Slight stimulation of construction activity took place under the "eleven point employment programme" but no serious attempts were made to utilize fully an effective construction programme for boosting up fuller employment possibilities. This was probably, because, investment in construction tended to be lumpy in character and required a bold and daring construction programme which was not possible under the modest set up of the First Five Year Plan's expenditure programme.

It is quite true that the First Plan was rather a modest one. When presented to the nation in its final form in 1952, circumstances were such, that, it could not be anything but modest. Of the five years of the planning period, nearly two were already over and the plan had to cover then only a three year period. It would be natural, therefore, to believe that, at the time of the formulation of the plan, no basic strategy was conceived. But when we make a closer examination of the plan, we find that, it possessed a basic strategy. This strategy can be summed up as follows : the raising of the development potential of the agricultural sector so as to yield an elastic supply of food grains and boosting up of the rate of increase in the supplies of marketable food surplus so that in the next planning period the job of raising the development potential of the industrial sector and the task of industrialisation of the economy could be accelerated.

This basic strategy yielded the subsidiary technique which emphasized rural extension, irrigation, transport and electricity development for revitalizing the whole economy. The above mentioned subsidiary strategy has behind it the economic logic that in an underdeveloped country with surplus labour, capital can be utilized in a more advantageous way in the initial stages of development if it could be used for the expansion of transport, irrigation, electricity and other types of undertakings where the advantages of large scale production are maximum.

Analytical economic reasoning can also be advanced for showing that in the earliest phase of planned economic development, cottage and small scale industries should be given special prominence and their reorganisation and expansion on proper lines should form the basis for one of the important subsidiary strategies of a development plan.

The main purpose of the fundamental strategy for raising the development potential of agriculture in the very beginning of the planned process of growth, is that, with the reorganisation and development of agriculture, productivity per head will increase which, in turn, will give rise to a substantial amount of farm surpluses for sustaining the process of a rapid industrial growth during the next phase. In most cases, the higher agricultural productivity will boost up the disposable incomes of the agriculturists. As a result of higher disposable incomes, in a great majority of cases, the farmer's effective demand for nonagricultural products would increase. Therefore in the next phase of planned development proper attention would have to be given to the development of secondary and tertiary sectors not only for increasing the supply of consumption goods but also for absorbing the surplus labour force which would be released from the rural economy as a result of reorganisation and revitalization of agriculture.

This type of general technique would be more effective if the initial agricultural development and reorganisation process is supplemented by a full fledged and thorough cottage and small industries development programme.

In the early years of agricultural development, cottage industries could be easily dovetailed with agriculture. If this process of dovetailing be effectively accomplished, the farmers and their family members will remain fully occupied during the year and the problem of underemployment in the rural economy will also, to some extent, be solved.

Thus in countries where there is surplus labour in agriculture which cannot get fully employed due to scarcity of land and lack of capital equipments, agricultural development should proceed side by side with cottage and small scale industries development and, if possible, one should be dovetailed to the other. This has to be specially remembered in the earliest stage of planned development.

It seems that, due to some reason or other, India's First Plan failed to attach that measure of importance which cottage and small scale industries deserved in the general programme for raising the development potential of the agricultural sector. The progress report of the First Plan reveals that out of the central provision of Rs. 150 million for the development of cottage and small scale industries during the First Five Year Plan period, the total expenditure amounted only to Rs. 1.43 millions in 1951-52 and Rs. 2.93 millions in 1952-53 and Rs. 7.99 millions in 1953-54. This clearly indicates that the framers of India's First Five Year Plan failed to appreciate fully the significance of cottage and small scale industries in a planned programme of agricultural development which precedes rapid industrialisation. We feel that the subsidiary strategy for a proper development of small scale and cottage industries should have been effectively tied up with the main strategy of boosting up of the agricultural development potential during the First Plan period. This is because, the real cost of using labour in cottage industry was almost zero during the First Plan period when there was a plethora of surplus labour in the agricultural sector. The proper type of stress on cottage and small scale industries during the First Plan period would have provided the best scope for making labour productive in an optimum manner without imping-

ing upon scarce resources. The "agro-type" of cottage and small scale industries, utilizing a variety of agricultural, forest and live-stock products, could have been effectively dovetailed with agriculture. The vital point, which has to be emphasized in this connection, is that, a bold programme of cottage and small scale industries development would have definitely helped us to build up a buffer stock of most essential elementary type of consumer goods which would have acted as an effective stabilizer to the potential inflationary tendencies, presumed to be associated during the next phase when the primary aim would be on heavy industries for creating a strong capital base.

If we understand properly the implications of the general technique which have been stressed time and again, then, it becomes clear that, the initial programme for raising the expansion potential of the agricultural sector should be followed by a bold programme of industrialisation which would put major emphasis on heavy industries not only for strengthening the capital base of the economy but also for achieving an accelerated process of growth. Ordinary sources of revenue may not suffice for financing such a bold programme and, therefore, a large amount of deficit financing may have to be undertaken which may generate new inflationary forces if bottlenecks of food and essential consumer goods exist in the economy. Under this broad perspective, agriculture cum cottage and small scale industries development should have been viewed by our planners. The development potential of agriculture was substantially raised as a result of which the food bottleneck was almost removed during the First Plan period but cottage and small scale industries did not receive that amount of attention which they deserved. We, however, do not mean that the government totally ignored the subsidiary strategy connected with the development of cottage and small scale industries in the First Plan. It seems that they were partially aware of this strategy but were unable to take prompt action because of the lack of an adequate organizational set up necessary for the programme.

Now at the end of the first planning period we find that, the government has set up the National Small Industries Corporation whose main function will be to organise production for meeting government orders and to assist the manufacture of parts and components by small units so as to fit in with the production of the corresponding large units. It seems, therefore, that the "putting out" system of the Japanese, inspired the government to establish this Corporation. The "putting out" system, which extends into those trades where a commodity has to be manufactured in several parts and where each part after being manufactured in a small workshop is assembled in a Central workshop, could have been emphasized even in the early years of the First Plan, much before the setting up of the National Small Industries Corporation, by the formation of private organizations, such as "traders and craftsmen co-operatives". In the immediate post second world war period, Indonesia achieved spectacular results within a short time in reorganising and expanding old trades through Government sponsored co-operatives of village traders and artisans. Therefore we think that much precious time was lost during the First Plan period which could have been effectively utilized for reorganising, expanding and modernizing the cottage and small scale industries. This would have solved both the village underemployment problem and created a proper ground work for a subsequent industrialization programme based on the expansion of heavy industries.

To sum up, the main strategy of the First Plan was connected with the acceleration of the development potential of the agricultural sector so as to facilitate the growth of industries in later years. But agricultural development can only be stepped up if there be an all round revolution on a wide front involving all aspects of rural life. To achieve this result, a double barrelled attack was made which yielded two subsidiary strategies. First subsidiary technique was connected with the development of transport, irrigation, electricity and community projects which were giving rise

to external economies and were facilitating the process of growth. The Community development projects and rural extension had the additional advantage of boosting up the public spirit and of providing *employment opportunities to the rural people.* The second subsidiary technique, which was partially neglected, was connected with development of cottage and small scale industries. The employment creating possibilities of such industries were stressed by the First Plan. It was also emphasized that such industries could economize both capital and supervisory skills. But development of cottage and small industries in the First Plan period, was not viewed under the proper perspective of long range development planning. If this were done, the framers of the First Plan would have given much more emphasis on cottage and small scale industries as this would have helped in the creation of a suitable buffer stock of essential consumption goods. Such a reserve stock would have acted as an automatic stabilizer and would have substantially minimized the inflationary impact of a subsequent bold and daring plan for raising the expansion potential of the industrial sector at an accelerated pace.

IV

THE BASIC STRATEGY OF THE SECOND FIVE YEAR PLAN

The child is father to the man. The above idea aptly expresses the intimate relationship between the First Five Year Plan and the Second Plan—the First Plan can be regarded as the parent of the Second. It is quite true that the First Plan was modest, less experienced and smaller, but even with its limited scope, it laid the main building block for a bolder and much more ambitious Second Plan.

The basic strategy of the Second Plan was conceived with special reference to the task of raising the development potential of the industrial sector. This was most logical because in the First Plan, the development potential of the agricultural sector was stepped up and the base structure,

dealing with the agricultural development and reorganisation was founded. Therefore, the superstructure of industrialisation is to be built up during the Second Plan period. Thus a fundamental link exists between the basic strategies of the First and the Second Plan.

This vital link can be easily explained in terms of economic theory and from experiences of economic development in the West. Economic theory teaches us that during the early phase of economic growth, the rate at which industrial development takes place is necessarily preconditioned by the rate of increase in the supplies of marketable surplus of food. This means that, the fundamental limiting factor on industrial expansion is the food barrier. That is why revolutionary development of agriculture would precede revolutionary changes in industry. This is also borne out by Western Europe's experiences in industrialisation. In almost all the important countries of Western Europe an agricultural revolution prepared the ground for an industrial revolution which resulted in rapid industrialisation and accelerated development and this is specially true for countries like U.K. and Germany.

We are now in a position to investigate the detailed mechanism of the basic strategy of India's Second Five Year Plan. Even after the conclusion of the First Plan, we find that the Indian economy is obviously a lopsided one. This is because no steps were taken in the First Plan for producing capital goods in sufficient quantity. The neglect of heavy industries was not unjustified as the planners during the First Plan period were mainly concerned with the cornerstones connected with agricultural developments. But due to this neglect, the First Plan could not achieve the desired rate of accumulation and was therefore termed as a modest Plan.

The Second Plan, therefore, places the correct emphasis on the right spot and gives greatest attention to the development of heavy investment in the investment good sector. During the Second Plan period large investments will be made in the public sector in basic industries, iron and steel,

heavy machine building, fertilizers, electricity, railways etc. About Rs. 20,000 millions would be spent for this purpose. Three steel plants of one million ingot capacity each are to be set up, and the beginning is to be made with heavy forges and foundries. Three more fertilizer factories will be set up and the capacity of the Sindri Fertilizer Factory will be expanded. The production of cement will go up from the present level of 4.3 million tons to 13 million tons; that of coal from 38 million tons to 60 million tons and that of finished steel from 1.25 million tons to 2.3 million tons. The output of railway locomotives is to be increased from the present level of 125 per annum to 300 per annum by the end of the Second Plan.

Here the main considerations, have been the need for developing as strong and wide industrial base as possible in the shortest period. This emphasis on certain key producer goods industries like metals, chemicals, cement and engineering, can also be justified on the ground that these are the types of manufacturing where the advantages of large scale production are the greatest. It should also be remembered that heavy industries help one another and grow at a rapid pace in a spiral like manner and infuse into the economy, an accelerated rate of growth.

No doubt the main emphasis is laid on the heavy industries but as India professes to be a welfare state, welfare expenditures could not be totally neglected. We therefore find that, large development expenditure will be incurred on health, education, research, social welfare, social security and cultural pursuits during the Second Plan period. For Social Services about Rs. 0,450 millions have been earmarked during the Second Plan period.

Let us now examine the details of the basic technique of the Second Plan. The ambitious programme of the *capital good sector could be achieved with the* greatest speed ,and at the shortest possible time if these industries plough back their own products for the process of further expansion and development of their own plants and equipments. This would mean that, the workers employed in this sector of

be taken to allocate an appropriate share to each sector to prevent destructive competition.

It seems that the planners have built up an economic case for temporary protection of certain cottage industries from the employment creating capacity, quick-yielding technique and labour-intensive method of such industries. But inspite of all these advantages the cottage industries will fail to deliver the goods if prompt steps are not taken for their effective reorganisation on modern lines. This is because technological progress acts as the kingpin of both overall and sectorial economic developments.

To sum up, the main strategy of the Second Plan consists in developing capital good industries (because they help to achieve the process of industrialisation at a rapid pace) and putting the economy on firm grounds. This major technique is supplemented by a minor technique which is included in the strategy of the Plan, mainly for fostering the aims and objectives of a welfare state. This minor technique is chiefly concerned with the development of social and welfare services. The major and the minor techniques not only create new employment but increase purchasing power and the demand for consumer goods. For solving this problem a subsidiary technique is evolved which primarily emphasizes household cum cottage industries for matching the increased demand for consumer goods with an increased supply of the same. Thus the basic strategy of the Second Plan laid a substantial amount of stress on heavy industries and the subsidiary strategy, which evolved for reinforcing the basic strategy, was ultimately conceived in such a manner that greater emphasis was placed on the expansion of household and cottage production than on factory production. This emphasis was given mainly for preventing capital from being used wastefully *and for solving unemployment and underemployment* problems in the rural economy.

There is no doubt that the emphasis on heavy industries is the correct approach for accelerated process of industrial development provided the outlook in the agricultural

sector is bright and cheerful. Though the overall strategy of the Second Plan is praise-worthy yet a few lacunae will be found here and there. The chief lacuna is the lack of proper adjustment and timing between the quantitative targets of the heavy industries and the qualitative improvements of production techniques envisaged for such industries. Lack of proper integration between the quantitative and the qualitative aspects will necessarily bring about a lopsided development of heavy industries. The quantitative targets should be determined in accordance with the qualitative improvements of the techniques of production which are expected to evolve during the planning period. Best results from the point of view of accelerated industrial growth are obtained when an early and effective start of capital good industries is dovetailed with the improvement in production techniques and when the targets to be achieved during the planning period are drawn up *with special reference to the expected improvement in technology and labour productivity.*

The Russians in their First Five Year Plan (1928-33) made a similar mistake and failed to bring about a proper co-ordination between quantitative targets and qualitative improvements envisaged in the heavy industries sector. But this drawback was detected by them during the course of their First Plan. As a result of this, the Russian Second Five Year Plan (1933-38) placed greater emphasis on qualitative improvement and brought about an effective synchronisation between the quantitative targets and the schemes for qualitative improvements. Poland, like Russia, also neglected this qualitative aspect in her First Six Year Plan (1950-56) because during this period the Polish planners were intensely engaged in achieving spectacular quantitative results. Poland has, however, decided to give more attention to the qualitative aspects of her industrialisation programme during the Second Six Year Plan period (1956-62). In fact, the State Planning Commission of Poland, on the eve of the Second Six Year Plan period, announced that during the First Plan period some 300 new

enterprises of various kinds were established in the economy and that during the Second Plan period, investment would be undertaken for expanding and improving these rather than for constructing new ones.

The most important obstacle in the way of cottage industries development programme appears to be the existence of a large non-monetized sector. (The greater the area of barter economy, the lesser the scope for a proper development of market which is vital for a quick disposal of the larger output produced by the more developed and expanded cottage industries.) But there are reasons to believe that, during the Second Plan period, the non-monetized sector will shrink. The implementation of the All India Rural Credit Survey Committee's recommendation regarding the opening of a large number of State Bank's branches in the important rural centres, coupled with an extraordinary heavy dose of deficit financing, would definitely expand the monetized sector of the rural economy. Therefore the impediment set up by the nonmonetized sector for jeopardizing the development of cottage industries will be minimized because of an overall increase in money supply, as a result of a bold deficit financing programme, and of extension and development of banking facilities in the rural areas.

(There is yet another drawback of cottage industries which becomes more evident, when we consider the question of mobilization of savings generated by the production units during the process of planned development.) It is a well known fact that the workers engaged in handicrafts production save only a meagre amount in terms of money. But in the case of cottage and household industries there is an extraordinarily large number of units of production. Therefore, though saving or surplus generated by a particular unit may be negligible, the total saving of all the units will be considerable. This saving, which is a special type of economic surplus, should be effectively tapped and utilized for accelerating the process of economic growth. But the mopping up of this economic surplus is difficult because the

cottage industries are scattered all over the country. Indeed, it would be a tough job to mobilize effectively the *titbits* of saving of the numerous units spread all over the country.

The only remedy for solving this problem lies in the formation of co-operative association of cottage and household industries. This will definitely help us to mop up the surplus created by the cottage industries in a more effective manner than in the case of disjointed, individualistic type of cottage enterprises. Thus the introduction of co-operative methods in the field of cottage industries would integrate the scattered units and help towards an effective reorganisation of such industries.

The co-operative association of cottage industries should show signs of progressive efficiency from the very beginning. The main object of such an association should be to raise the units within it to progressively higher level of efficiency. In our country there is a large number of inefficient cottage industrial units. Unless their efficiency is stepped up and they are thoroughly revitalized, there is no point in subsidizing such units at the expense of factory industries. Inefficiency should not be allowed to grow at the expense of efficiency. Therefore an early and effective *reorganisation and rejuvenation of the cottage industries* should be undertaken. For this purpose co-operative methods and modern techniques should be adopted. But even a modest programme of *reorganisation and revitalisation* would involve a time lag which would be difficult to overcome. This problem could have been easily solved if proper stress could be given towards the implementation of an effective programme for the development and reorganization of cottage industries during the First Plan period.

The most glaring defect of the Second Plan is that, it has not given full attention to the problem of lowering production costs and increasing all round efficiency. The planners should have devised special methods for improving labour productivity and increasing industrial efficiency. The entire wage system should have been studied and analysed anew in order to fulfil the qualitative objective of

higher efficiency and greater labour productivity. More attention should have been paid to the idea of premium payments for good quality of the products produced.

Not only Russian experiences but also recent Polish experiments on Planning have clearly indicated that a bold plan for industrialization with its ambitious quantitative targets cannot achieve full results if the qualitative aspect is neglected. Poland's First Plan was modelled in the line of the Russian First Plan and therefore maximum emphasis was laid on the quantitative programme of the heavy industry's sector. Consequently during the First Plan period desperate attempts were made to industrialise Poland by " methods of war economy " in which patriotic appeals and political pressure were used for the fulfilment of the fundamental quantitative targets. In fact, during the First Plan period in Poland, the stick of political pressure was ruthlessly used and the carrot of material gain was conspicuous by its absence.

Due to lack of qualitative emphasis and absence of economic incentives, the Polish First Plan's quantitative targets of the important industries were somehow formally reached but the quality of the products was always below standard.

Poland however realised her mistake and in her Second Plan has decided to increase quantity and to improve quality of production. During the Second Six Year Plan period Poland would not like to experience a " crisis of incentives " which caused her considerable headache during the First Plan period. Therefore during the Second Plan period, she would rely more on material rewards than on political pressure. Before the commencement of the Second Plan, the entire wage system was thoroughly studied and it was decided that the wages of the workers should be progressively raised every year in line with the increase in productivity. The Polish Second Six Year Plan aims at boosting up of labour efficiency and productivity by 50 to 60 per cent and at raising workers' wages by 40 per cent. Not only Poland, but China has also given considerable attention to this vital

problem in her First Five Year Plan (1953-58). In China wage has been raised almost pari passu with the rise in the productivity of the worker.

In India, however, no serious attempts have been made for correlating the real-earnings of the worker with the increase in labour productivity. Indian Labour Gazettes reveal that, during the First Plan period the rise in labour productivity was about three times the rise in the real earnings of the worker. Thus there has been a partial stagnation of industrial earnings during the First Plan period and if this tendency continues during the Second Plan period, it would definitely retard the future growth of the economy. Therefore, prompt and effective steps should be taken during the Second Plan period for qualitative improvements and for the removal of partial stagnation of industrial earnings.

In the formulation of the Second Plan's basic strategy less emphasis has been given to the development of agriculture. This was perhaps due to the overfulfilment of the quantitative targets in the agricultural sector during the First Plan period. For the food grains alone, the output was 45 per cent above the target. Consequently the Planning Commission was in an optimistic mood and formulated the Second Plan on the assumption of an elastic food supply. But it should be noted that the steeply inelastic and backward rising supply curve of Indian agriculture acquired a substantial amount of elasticity during the First Plan period more as a result of favourable monsoon of 1953-54 than due to changes in irrigation, in seeding, in manuring or in other farm management practices. In other words, during the First Plan period, the development potential of agriculture was stepped up more by natural than by human and technological factors.

Even with this improvement in agricultural production, India is still short of food grains to feed her people at a reasonable level of balanced nutrition. Unless the workers get a balanced, nutritious diet, it would really be a tough job to increase both productivity and efficiency of labour in

India.) We have considerable doubts whether the Second Plan target of 75 million tons of food grains would be sufficient for providing a balanced nutritious diet to the teeming millions of India's population.)

Food production should be stepped up during the Second Plan period not only for maintaining the Indian population at a higher dietary level but also for building up an additional buffer stock for stabilizing adverse price movements during this period. Rapid industrial development under the auspices of a bold plan would produce enhanced demand for food and raw materials from the expanding secondary and tertiary sectors of the economy.

If food targets are modest in relation to the bold programmes of industrial development, then, there are chances for a food bottleneck developing in the course of the implementation of the plan. A modest food programme means that we are not taking adequate safeguards against the adverse forces of nature. There are already indications that the temporary elasticity acquired by the food supply curve during the First Plan period, as a result of favourable monsoons, is being gradually neutralized by the vagaries of nature. In fact, temporary food bottlenecks in certain sectors of the Indian economy are already discernible. It is commonly known that an initial food bottleneck of a small magnitude has an accelerating effect infused into it from exogenous forces connected with the propensities for hoarding, speculating and black marketing. Only with an effective and substantial food buffer stock we can counteract these accelerating forces which magnify the primary food bottleneck.

While reviewing food statistics since 1949-50, it is found that production in the base year (1949-50) was 54 million tons, food output increased by 11 million tons in the First Plan period (between 1951-56) and it has been proposed to step up this output further by another 10 million tons during the Second Plan period (1956-61). This really means that the target for increasing food production in the Second Plan would be approximately the same as the

increase in food production achieved during the First Plan period.

The First Plan was a modest affair and the expansions in the secondary and tertiary sectors of the economy were very limited. Therefore from the increase of 11 million tons of food grains, a buffer stock could be built up which considerably brightened the food situation. Second Plan is a bold one as it envisages an ambitious development programme for the secondary and tertiary sectors of the economy. It appears that the heavy dose of deficit financing of the Second Plan, coupled with mildly adverse natural forces, would further raise food prices during the Second Plan period. This would aggravate tendencies towards hoarding and speculation, causing quick depletion of the food buffer stock created during the First Plan period.

On the food front, the yellow signal is already up and the modest Second Plan target of 10 million tons of increase in food production would not be able to change the yellow signal into the green. To avoid the danger signal and its consequences, we should substantially revise our food target for the Second Plan. It appears that the government are giving some consideration to this problem which, being of crucial importance, deserves their immediate attention.

The recommendations for substantially stepping up of the food target can also be justified in terms of the basic analysis connected with the development potentials of the agricultural and industrial sectors. It has already been stated that the development potential of the agricultural sector was raised during the First Plan period. In fact, during this period, Indian agriculture showed signs of substantial recovery from a state of stagnation.

Once a recovery starts, it acquires a momentum of its own, bringing about changes on a wide front. The potentiality of this momentum will increase if subsequently bolder programmes are introduced for supplementing the initial achievements. This explains why the agricultural sector requires bold targets during the Second Plan period.

Stepping up of agricultural targets in the Second Plan period would not greatly clash with the bold programme of raising of the expansion potential of the industrial sector because there exists now an innate momentum in the development potential of the agricultural sector.

In short while examining the basic strategy of the Second Plan no vital defect would be noticed in the primary technique of emphasizing heavy industries for achieving an accelerated process of growth. The subsidiary technique for emphasizing cottage and small scale industries is not totally unjustified as we, like the Russians, do not propose to keep consumption at the rock bottom level. We think however that, cottage industries should have been developed on a co-operative footing and on modern lines during the later stages of the First Plan period because this would have created an effective buffer stock of essential consumption goods, acting as an automatic stabilizer to the inflationary tendencies associated with the Second Plan. We also believe that for the sustenance of the bold programme of expansion in the secondary sector in the Second Plan, agricultural development should be properly geared to industrial growth. If slightly larger allocations could be made to the agricultural sector, agricultural output would rise beyond expectations under the impact of the momentum which the agricultural sector has acquired during the First Plan period. In addition to these slight alterations in Second Plan's subsidiary strategies, we would also advocate adequate measures for dovetailing quantitative targets with the schemes for qualitative improvements. In fact, the basic technique of the Second Plan requires a proper amount of lubrication for avoiding frictions during its progress—proper type of qualitative emphasis on the right spots would accomplish this task in a smooth manner.

Before we conclude our discussions on the basic strategy of the Second Plan, it would be worthwhile comparing our technique with those of the Russian, the Chinese and the Polish. Soviet Russia was the pioneer in the field of planning for accelerated growth. Lenin's aim was to trans-

form an underdeveloped agriculture-dominated economy into a highly industrialized country within the shortest possible time. The technique that Soviet Russia effectively utilized for this purpose can be called the method of "planning with unbalanced growth". The expansion in the heavy-industry's sector was much faster than the progress in other sectors. A maximum expansion of heavy industry was the major objective in Russia because the Soviet plans were more concerned with machines and their power potential than with people and their happiness. The output and the economic surplus generated in the heavy industry's sector were continuously reinvested for further expansion of that sector. The net result was that in the field of heavy industry, a high rate of production was recorded. The substantial raising of the growth co-efficient in this vital sector of the economy produced an obvious acceleration effect which in its turn favourably influenced the overall rate of growth for the whole economy. But during this spectacular process of development, Russia was transformed into a power-oriented "siege" economy.

Agriculture and consumption goods industry were both secondary in importance to heavy industry. In the case of agriculture, however, strait-jacket methods were introduced and mechanisation cum collectivisation was imposed from above. The ultimate result of this was that the planners were constantly baffled, in the early stage, with the problem of insufficient supply of food grains to meet the demand of an expanding urban population.

In the initial stage of Russia's First Five Year Plan a serious cleavage developed inside the peasantry between the minority of wealthy peasants ("Kulaks") and the vast majority of the poor. Therefore in the summer of 1929, the Soviet government passed a decree for eliminating the "Kulaks" as a class. Thus the upper stratum of the peasantry was crushed into pieces and their production was replaced by the introduction of large scale collective farming. But the collectivisation programme was slow to achieve success because the Soviet government was all the

. time endeavouring to extract the maximum amount of economic surplus from this sector of the economy with the help of rigid, strait-jacket methods.

The consumption goods sector was much neglected during the planning period. In the Russian First Five Year Plan only 14 per cent of the actual investment in industry was in consumer goods although it was planned to spend 27.4 per cent on the latter. This policy of comparative neglect of consumer goods industry was pursued by the Gosplan (i.e. Soviet Planning Commission) throughout the planning period. Recently, on the eve of Russia's Sixth Five Year Plan (1956-60), it was pointed out by M. Strumilin, the veteran chief of Gosplan, that if the consumer goods industry expanded by as much as 10 per cent per annum then it followed that capital goods industry must expand at the rate of at least 18 per cent and if this relationship was not maintained, the consumer industries would ultimately stagnate for lack of machinery. This thesis was rigidly implemented by means of regimentation of ordinary Russian consumer's lifes in the early years of Planning and it seems that it will continue to be the watchword of the power-oriented economy even in the future in spite of substantial development of heavy industries. Thus Russia exhibits the crude and extreme case of the general method of "planning with unbalanced growth". The political conditions in Russia were such that, even these extreme tactics, pursued under a 'siege' economy, could ultimately substantially uplift the economy from a condition of stagnation and underdevelopment.

The Russian experiences have provided important lessons which have convinced both democratic and communistic countries, undertaking planning for accelerated growth after the Second World War, that, it would be unwise to adopt the crude and extreme version of the technique of "planning with unbalanced growth." China, Poland and India all have generally accepted the principle that heavy industries should be specially emphasized during the initial planning period for the purpose of achieving

accelerated growth. But they have learnt a lot from the errors of the Soviet policy and have therefore adopted a milder version of the strategy of " planning with unbalanced growth ".

In the less rigid type of "planning with unbalanced growth", incentives plus co-operation highlight agricultural expansion and development during the initial stages of planning. Consumption does not have to remain at the rock bottom level as consumer demands are either met by utilizing excess capacities and increasing labour productivity in the small manufacturing industries with the help of suitable incentives or by expanding the output of the thoroughly reorganised and revitalized cottage and household industries' sector.

Turning to China we find that, in addition to the emphasis on heavy industries in her First Plan, she has also taken effective steps for achieving a second agricultural revolution[8] by means of co-operative farming. China considers that co-operative farming is the immediate basic solution for increasing agricultural output so as to sustain industrial growth and for neutralizing the cleavage inside the peasantry between the richer and the poorer sections. Collectivisation would be achieved via the " Semi Socialist Co-operatives "[9] after a suitable time lag. Even with these comparatively milder methods than those of Russia, China hopes to increase her agricultural output and subsidiary rural production by 23.3 per cent. China has also given considerable attention to the development of hand and

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[8] The first agricultural revolution was achieved in the preplan period by the brilliant land reform policy of the Communist Government. The policy was to reorganise agriculture on a local scale. Boundaries of certain villages were chalked out and within these areas the major portion of the land was allocated to those farmers who passed the "class-status" test.

[9] Under the system of "Semi Socialist Co-operatives" the chinese peasant is expected to surrender his plot of land as his share to the co-operative's funds; but he is to retain ownership of cattle, agricultural implements, etc.

household industries for augmenting the supply of consumption goods. Mr. Li-fu-Chun, Chairman of the Chinese Planning Commission notes, "local industries and handicrafts in our country would play an important part in supplying the needs of both the urban and rural population".

Looking at Poland we find that, on the eve of Poland's Second Five Year Plan, the Polish Planning Commission recognized the mistake of blindly copying the crude Russian method of "planning with unbalanced growth" in which heavy industries were overemphasized at the expense of agriculture and consumer goods as a result of which privations and miseries of the people increased and a "crisis of incentives" developed in the agricultural sector. In the Second Plan, Poland has rectified her mistake and with the aid of the method of direct incentives and premium payments, she has taken effective steps for bringing about both quantitative and qualitative increase in the output of agriculture and small manufacturing industries. In fact, Poland has announced in her Second Plan that food production would be increased by 25 per cent, compared with 17 per cent of the First Plan and that, the rate of consumer goods production would be substantially stepped up.

From the foregoing analysis it is clear that, the basic strategy of India's Second Plan resembles more to those of Poland and China than that of Russia. The Russian experiment with the technique of unbalanced growth was both ruthless and crude in its outlook as Russia was bent upon achieving maximum economic development within the shortest possible time with the aid of a power-motivated strait-jacket policy.

Practical lessons, learnt from Russian experiences, have convinced the present day planners, in both democratic and communist countries, that, they should modify the rigid Russian planning technique and should adopt a substantially milder type of the strategy of "planning with unbalanced growth" in which the magnitude of disproportions between heavy industries, consumption goods industries and agriculture are much lesser. Though the basic strategies are

almost similar in India's Second Five Year Plan, China's First Plan and Poland's Second Plan; yet the strategic levers of the planning mechanism are to be manipulated in each case with a particular objective. India has strong faith on human freedom and dignity and therefore her development programme is basically welfare-oriented. China and Poland, though they do not intend to imitate the Russian tactics of ruthless regimentation of human lifes during the planning period, endeavour to camouflage a power-oriented policy for economic development by means of high sounding "welfare cum incentive" slogans.

V

Financing of India's First and Second Five Year Plans

With the help of appropriate strategies, the availability of physical resources is matched with the specific production goals; but in addition to this, planning of financial resources is necessary for estimating the total cost of the whole series of output target on the basis of a given level of prices. This explains why we should focus our attention to the financial side, connected with resource's budgets of the First and Second Plans.

As we have already seen, India's First Plan was rather modest in its outlook. The First Plan was mainly of the "ground preparing" type as it wanted to achieve moderate economic development with minimum current sacrifices. Even with the revised total outlay of Rs. 23,560 millions, the plan could not cover all the important sectors of the economy. The Government's role in the public sector was also limited because of modest outlays and organizational delays. Throughout the First Plan period, Government's main concern was to maintain stability in the economy by neutralizing economic fluctuations. Being more absorbed in the problem of achieving stability, the Government could not do proper justice to the modest investment programmes in the public sector. In fact, from the financial point of view, the First Plan should be regarded

as a 'stability plan' rather than a 'development plan'. The draft outline was prepared in 1951 at a time when the Indian economy was operating under the strong inflationary pressures caused by the Korean War boom. Therefore, the plan had stability as its primary objective and the Planning Commission was very careful in making the financial totals of the approved programmes equal to the realisable savings. This cautious approach made the whole plan a modest affair and the usual bold and daring features of a "development plan" were conspicuous by their absence.

The financial provision[10] of the First Plan reveals that for financing the outlay of Rs. 20,690 millions under the plan, Central and the State Governments would get about Rs. 12,580 millions from borrowing cum budgetary sources. In the table given below it is shown how from public and

The First Plan's Estimated Budgetary Resources			
	Centre *(in millions of rupees)*	States *(in millions of rupees)*	Total *(in millions of rupees)*
Public Savings from			
(a) Current revenues	1,600	4,100	5,700
(b) Railways	1,700	..	1,700
Private Savings absorbed through			
(a) Loans from the public ..	360	790	1,150
(b) Small Savings and other unfunded debt	2,700	..	2,700
(c) Deposits, funds and other miscellaneous sources (net)	900	430	1,330
Total ..	7,260	5,320	12,580

[10] We give here the figures of the financial provisions of the Plans in terms of millions of rupees instead of crores of rupees. It should be noted that 10 millions=1 crore and 1 million=10 lakhs.

private savings Rs. 12,580 millions would be acquired during the plan period.

After accounting for deficit financing of Rs. 2,900 millions against releases of sterling balances, the net gap in resources to be covered by external assistance, additional borrowing and/or additional deficit financing was estimated at Rs. 5,210 millions. We show below the break up of the financial provision of the First Five Year Plan in terms of original estimates.

Financial Provision for the First Plan's outlay of Rs. 20,690 millions for the Public Sector

Sources of Finance	Original estimate (in Rs. millions)
1. Surplus from Current Revenues (including Railways)	7,380
2. Borrowings from the public ..	5,200
1 + 2→ Borrowings + Budgetary sources ..	12,580
3 Deficit Financing (against Sterling releases)	2,900
4. Gap to be filled by External assistance, additional borrowing and/or additional deficit financing	5,210
Grand Total	20,690

Subsequently the size of the planned outlay was revised to Rs. 23,560 millions as a result of which the gap increased to Rs. 8,080 millions. It should be noted here that the authorisations of external assistance over the period April 1951—June 1954, together with the undrawn portion of the loan sanctioned by the International Bank during the pre-plan period, amounted to Rs. 2,340 millions.

This means that the newly created gap of Rs. 2,870 millions (i.e., revised estimated outlay of Rs. 23,560 millions minus the original estimated outlay of Rs. 20,690 millions) due to the revision of the total outlay estimate could have been almost fully bridged by means of external assistance. But all this was unnecessary as the aggregate outlay in the public sector was somewhat below Rs. 20,000 millions during the First Plan period.

As a 'stability plan', the First Plan had to make a cautious approach to the problem of deficit financing. Rs. 2,900 millions of deficit financing, proposed in the plan, was intended to be made against releases of Sterling Balances. The economic logic advanced in this connection was: Rs. 2,900 millions of deficit financing would certainly give rise to additional domestic incomes by an equivalent amount; but the value of the sterling releases during the Five Years being equal to the amount of deficit financing, the Government would be in a position to procure additional imports worth Rs. 2,900 millions and this would neutralize the inflationary impact of the deficit financing programme so that the stability criterion of the plan would remain intact.

There is, however, one major flaw in this type of reasoning. It should be noted that India, being an under-developed country, does not possess enough excess capacity to make possible a quick rise in consumption output. Therefore, in such an economy as a result of a rise in investment, due to the deficit financing programme, the multiplier will work vigorously in money terms though not in real terms. This means that the primary increase in income, as a result of deficit financing, would lead to secondary, tertiary and even further increases due to successive respending of the new money by the inhabitants of the country whose propensity to consume would be quite high. Therefore, there is no reason to believe that Rs. 2,900 millions of deficit financing, undertaken during the First Plan period, has generated only an equivalent amount of money income. Due to the multiplier effect, the total

amount of money income generated must have been greater
than the total amount of deficit financing. Inflation was
kept in check during this period not only because the
moderate dose of deficit financing was safeguarded
by Sterling releases but because of a substantial
improvement in the supply position of food and industrial
raw materials. Moreover, the original plan that Rs. 2,900
millions of deficit financing would be fully covered by
the release of Sterling Balances to the equivalent extent
most probably remained unfulfilled because of the
slow rate of release of Sterling Balances. In fact, during
the first four years of the Plan only about Rs. 1,540
millions of Sterling Balances were released. It would
be fantastic to assume that in the last year of the
First Plan period Rs. 1,360 millions of Sterlings were
released.

The deficit financing programme of the First Plan was
rather too moderate. Even the International Monetary
Fund Mission, which visited India early in 1953, was of the
opinion that deficit financing amounting to about Rs. 1,000
millions a year would be quite safe and would tally with
the financial stability criterion of the Plan. But from the
Progress Report of the First Plan it appears that the
quantum of deficit financing was kept in check partly due to
organizational difficulties but mainly because of accretion
of additional public resources from the capital market as a
result of enthusiastic public response to the long term
borrowing programmes of the government specially during
1954-55.

The Department of Research and Statistics, Reserve
Bank of India has estimated (in a paper on the " Problems of
Resource Mobilisation " published in the " Papers Relating
to the Formulation of the Second Five Year Plan ")
that the total amount of deficit financing undertaken
by Central and State Governments during the first
four years of the Plan period has risen to about Rs. 1,750
—2,000 millions. During the last year of the First Plan
period both the Central and State budget deficits were

quite large as more money was injected into the economy for accelerating the rate of government expenditure. But inspite of this rise in the tempo of expenditure, the Planning Commission has recently estimated that total deficit financing during the First Plan period would most probably amount to Rs. 3,000 millions. Thus it is clear that during the First Plan period, the quantum of deficit financing was always kept within bounds because the aim was to achieve only a moderate amount of economic development with a high degree of financial stability.

During the First plan period financial bottlenecks did not baffle the Planners as the actual volume of expenditure was slightly less than the desired level of outlay. In the first three years of the Plan, according to the Progress Report, only Rs. 8,650 millions were spent and in the fourth year about Rs. 5,000 millions were expended. Though in 1955-56, the target of expenditure was fixed at Rs. 7,110 millions, yet the actual expenditure would be near about Rs. 5,750 millions. Therefore, the total outlay undertaken during the First Plan period most probably would be of the order of Rs. 19,400 millions which would amount to about 95 per cent on the basis of original estimates of outlay of the plan and about 80 per cent on the basis of the revised outlay estimates.

Thus the operation of a set of exogenous forces plus strict adherence to the principal of financial stability were mainly responsible for the achievement of monetary equilibrium during the First Plan period. But the organisational problems adversely affected the rate of government investment so the plan, when completed, looked more modest than when it was started. Nevertheless, the "stability character" of the Plan was unimpaired throughout the Plan period.

The All India cost of living index was at an average level of 96 in 1955 as compared to 100 in 1949. Money supply in the hands of the public at the close of the fiscal year 1955-56 was about Rs. 2,080 millions above the 1951 level. On the whole it was observed that the overall

economic picture on the eve of the Second Five Year Plan was "one of stability and steady progress."

The substantial rise in agricultural production, accompanied by a considerable degree of financial stability, during the First Plan period provided an atmosphere of confidence and optimism which helped to make the Second Plan bold and daring in its outlook. Compared with the First, the Second Plan was definitely bold and ambitious and the circumstances were such that it was hardly possible for the plan to take up any other line of approach. The "stability approach" of the First Plan had outlived its usefulness. Therefore, on the eve of the Second Plan, it was realised that a bold and spirited attitude was necessary for tackling the development programmes so as to catch the imaginations of the people and to accelerate the rate of progress of the economy.

The financial provisions of the Second Plan specially reveals a bold and courageous approach to the whole problem. It is proposed in the Second Plan that the developmental programme of the Central and State Governments would require an expenditure of Rs. 48,000 millions. Exactly half this amount (Rs. 24,000 millions) would come from budgetary sources. Taxes would contribute Rs. 8,000 millions (Rs. 3,500 millions would come from taxation at the 1955-56 rates and Rs. 4,500 millions would come from additional taxation.) Borrowings from the public would bring Rs. 12,000 millions (Rs. 7,000 millions would come from market loans and Rs. 5,000 millions from small savings.) Other budgetary sources would contribute Rs. 4,000 millions (Railways' contribution would amount to Rs. 1,500 millions and the Provident Funds and other deposit heads would yield Rs. 2,500). The question therefore is : How the remaining Rs. 24,000 millions would be forthcoming? It is expected that Rs. 8,000 millions would come from external sources leaving thereby a gap of Rs. 16,000 millions in the planned expenditure. Even with an ambitious deficit financing programme amounting to Rs. 12,000 millions, there would still remain an uncovered

gap of Rs. 4,000 millions. The bold and spirited tone underlying the financial provisions of the Second Plan can be best compared with the courageous and daring tactics displayed by an army which, being intensely absorbed with the desire of making spectacular strides on all fronts, is temporarily unmindful of future ration provisions.

It would be worthwhile investigating as to how the uncovered gap of Rs. 4,000 millions can be bridged up during the Second Plan period. It has been only broadly hinted in the final version of the Second Plan that this gap would be covered ultimately by means of additional measures for tapping domestic resources. This is rather a vague statement. Some sort of clear indications should have been given in the Plan, mentioning the exact domestic source by means of which the ultimate gap could be filled up.

The amount of deficit financing envisaged in the Second Plan has already been fixed on a fairly liberal basis and it is doubtful whether it would be safe to exceed the present target of Rs. 12,000 millions. It should, however, be noted that against the deficit financing of Rs. 12,000 millions we must set off the drawing down of Sterling Balances amounting to Rs. 2,000 millions during the Second Plan period. The remaining deficit of Rs. 10,000 millions represent the net addition to currency in response to government's budgetary operations. Thus deficit financing, in the sense of new currency creation, amounts to Rs. 10,000 millions. In fact, it might be possible for the Government to step up Sterling releases during the Second Plan period from Rs. 2,000 millions to Rs. 3,000 millions. The level of our Sterling Balances stood at Rs. 7,300 millions at the end of the fourth year of the First Plan and on the eve of the Second Plan the Balances stood at about Rs. 6,600 millions. A minimum balance of about Rs. 3,500 millions will have to be retained till the end of the Second Plan not only to serve as a backing for the domestic currency but also for normal trade purposes and for additional trade resulting from a rise in national income. Therefore, no difficulty should arise under the normal circumstances if we draw

about Rs. 3,000 millions from our Sterling Balances. This would mean that deficit financing, in the sense of net addition to currency, would amount to Rs. 9,000 millions.

This amount of net deficit financing should be always viewed as a process of advanced borrowing from the potential saving of the community. Due to an increase in money supply as a result of deficit financing there would be a period of brisk economic activity which would ultimately raise production levels in the industrial and agricultural sectors. This means that the hidden economic surplus of the industrial and agricultural sectors would be transformed into actual economic surplus which, if properly mobilized, would definitely neutralize the initial inflationary impact of the deficit financing programme.

The time lag between the initial spending of money under the deficit financing programme and the final production of goods should be minimized as far as possible and this can be done effectively if the created money is spent on a bag of properly selected, productive public investment programmes with well balanced maturities. The inflation which will arise, in the meantime, can be held in check by means of selective and qualitative credit controls and with the help of the stabilizing forces generated by effective buffer stocks of food, cloth and other essential consumption goods. If in spite of all this, there is mild inflation, one should not be too much worried about it because under higher price incentives, the development potentials of all the sectors of economy are stepped up in such a way that the process of overall growth of the economy is substantially accelerated and development planning becomes a real success. Therefore, we need not be perturbed at the idea of a bold programme of deficit financing during the Second Plan period which would create Rs. 10,000 millions of new money in the economy.

As we have already seen, the "net" amount of deficit financing can be reduced to Rs. 9,000 millions provided Sterling releases are raised from Rs. 2,000 millions to Rs. 3,000 millions. This estimate of Rs. 9,000 millions of

net deficit financing is bold but not extremely risky because with a substantial expansion of income and economic activity there is every possibility that, about Rs. 8,000 millions of potential economic surplus would be generated from the agricultural and industrial sectors during the Second Plan period. In fact, our basis of estimation of Rs. 9,000 millions of net deficit financing tallies, well with Professor Nicholas Kaldor's recent observation[11] that the Indian economy's absorptive capacity of deficit expenditure would be about Rs. 8,000 millions during the Second Plan period. Thus even with a bold approach, it would be difficult to exceed the target of deficit financing envisaged during the Second Plan period without seriously jeopardizing the strategic levers of the economy.

As the magnitude of deficit financing cannot be further raised without danger to the economy, we have now to look into public borrowing for filling up the uncovered gap of Rs. 4,000 millions. Inspired by the enthusiastic public response to the Government's long term borrowing programme during the last two years of the First Plan, an optimistic estimate has already been made about public borrowing which is expected to yield one fourth of the revenue required for the total expenditure of Rs. 48,000 millions for the public sector. Moreover, it is expected that during the Second Plan period, the major recommendations of the Indian Taxation Enquiry Commission for revising existing tax rates and for introducing new taxes are likely to be implemented. This means that there would be an allround increase in taxation on all groups including the lower and the middle income brackets. Consequently, the margin between personal incomes and personal consumption would be squeezed out, leading to a reduction in personal savings. It should also be remembered that the objective of socialistic pattern of society, envisaged in the Second Five Year Plan, would gradually accomplish the task of levelling income

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[11] See Professor Nicholas Kaldor's Report on Indian Tax Reform issued by the Department of Economic Affairs, Ministry of Finance, Government of India, 1956.

inequalities and would thus produce wider diffusion of income. It would be an extremely difficult task to mop up scattered individual savings arising out of widely diffused incomes. Under the circumstances it is doubtful whether the already high target of public borrowing to be achieved during the Second Five Year Plan period could be further raised for bridging the uncovered gap of Rs. 4,000 millions.

Therefore, it seems that the only way out of this impasse would be to further augment tax revenues. In fact, if the Second Plan is to be successfully implemented ninety percent of the gap of Rs. 4,000 millions will have to be bridged by additional taxation. The remaining ten percent (i.e. Rs. 400 millions) of the gap, can be covered by slightly upgrading railway rates and by raising port charges.

Let us now see how with the help of additional taxation ninety percent of the uncovered gap of Rs. 4,000 millions (i.e. Rs. 3,600 millions) could be filled up. Of the originally proposed amount of additional taxation, (Rs. 4,500 millions) the State governments have decided to contribute Rs. 2,250 millions by means of appropriate fiscal measures. This means that, the remaining Rs. 2,250 millions will have to be raised by the Centre. To this amount has to be added, the extra Rs. 3,600 millions which has to be obtained for filling up 90 percent of the uncovered gap of Rs. 4,000 millions. Therefore, the total amount of taxes to be raised by the Centre during the Second Five Year Plan period would go up to the high figure of Rs. 5,850 millions. The Central budget for the year 1956-57 (i.e. the first year of the Second Plan period) indicates that with the help of suitable fiscal measures it is expected to yield Rs. 350 millions of additional tax revenue a year. This means, over the five year period, the total tax yield with the existing type of fiscal measures would amount to Rs. 1,750 millions. This will still leave a balance of Rs. 4,100 millions to be covered during the next four years. Therefore, during the remaining four years of the Second Plan new measures of taxation, yielding additional amounts of revenue, will have to be introduced.

It seems that an annual tax on net wealth, with the exemption limit fixed at Rs. 10,000 and levied on total net wealth including agricultural land, should be immediately introduced for enhancing tax revenues. The wealth tax, in addition to the present estate duty, would effectively check the accumulation of personal fortunes and would thus pave the way for a socialistic pattern of society aimed at by the Second Plan. Such a tax would also minimize the propensities of hoarding gold bars and acquiring gold ornaments and jewelleries. Moreover, a tax on wealth would lead to the discovery of the tax payer's concealed property which in turn, is bound to reveal some of his "hidden" sources of income. Therefore, a wealth tax would considerably help towards detection of income tax evasions and would greatly revenue from income tax. On the advice of Prof. Kaldor, who had originally recommended the introduction of a tax on wealth in India, a study team has been sent by the Indian Finance Ministry to foreign countries for investigating the practical problems which would arise out of the levy of a tax on wealth.

In his "Report on Indian Tax Reform", Prof. Kaldor has also recommended the revival of capital gains tax in India. We, however, cannot agree with Prof. Kaldor on this point as this would adversely affect the psychological profit estimates by private investors (which would produce adverse repercussions on the " marginal efficiency of capital " so that the investment-demand schedule would receive a rude shock) and thereby retard investment programmes, in the private sector. Ours is a mixed economy, therefore, there should be simultaneous growth of both the private and public sectors of the economy. Therefore tax incentives are more important than tax disincentives. We firmly believe that a system of tax incentives aiming at the reduction or deferment of the taxes on reinvested earnings would be the best solution from the development point of view as this would greatly accelerate capital formation in the private sector.

We however agree with Prof. Kaldor that a personal

expenditure tax with high exemption limit should supplement the present system of income tax. An expenditure tax would curtail the unproductive consumption of the higher income brackets as a result of which their savings will be greater. This saving, if properly mopped up, could be effectively utilized for accelerating the process of development. In fact, the introduction of personal expenditure tax, with high exemption limit, and an annual tax on net wealth, with the exemption limit, fixed at Rs. 10,000, would not only yield substantial amount of revenue but would also greatly mitigate the adverse effects of the present highly progressive system of income tax on the ability to work and on the propensities to expand and modernize business enterprises.

There is no doubt that the expenditure tax would tap in an effective manner, the potential economic surplus which is usually wasted by the richer class in unproductive consumption. But what about the economic surplus of the agricultural sector? For mobilizing farm surpluses accruing to a few "above the average" farmers and also to the big co-operative societies (under the auspices of Co-operative Village Management) a special type of land tax would have to be introduced. This land tax would be levied either in kind or in money terms but the rates would have to be milder than that which we usually find in the case of compulsory agricultural taxes in communistic countries. If such a land tax is introduced in India, it should be levied jointly on agricultural income and agricultural property; the rate should be moderate and also flexible so as to avoid a "crisis of incentives" in the agricultural sector.

Lastly, we think that during the process of economic growth a "betterment levy" should be imposed on those sectors of the economy where an allround improvement has occurred as a result of the implementation of the development programmes and where the process of generation of economic surplus has been accelerated by means of effective planning. A mild "betterment levy" is a necessary concomitant of a bold type of development plan which promises

spectacular results for the future. But a "betterment levy" should never be pushed too far in a democratic plan for if this be done, the main objective for the imposition of the levy would be awkwardly twisted and the betterment levy would be no better than the compulsory levy, usually imposed in communistic countries for extracting economic surplus in a crude and ruthless manner. A mild type of betterment levy, accompanied by effective propaganda for explaining the achievements of the plan and its future ambitious targets, should not be seriously objected by the people.

Looking at the financial provision of the Second Plan, showing an uncovered gap of Rs. 4,000 millions, we were not satisfied with a somewhat Micawber-like hope that something would ultimately turn up and solve the problem. Therefore, we thoroughly scrutinized all the available domestic sources for raising the additional revenue for covering the gap. We found that target figures for borrowing and deficit financing had been put almost at their maximum levels. From this we came to the conclusion that, for bridging the uncovered gap we have to rely mainly on additional taxation. We firmly believe that the introduction of an annual tax on net wealth, coupled with a personal expenditure tax, would help us to tap the economic surplus lying "hidden" in concealed properties and to mobilize potential economic surplus wasted by the richer class in unproductive consumption. In addition to this, the special type of land tax, to be levied mainly on big co-operative farming societies, plus a mild type of betterment levy, to be imposed on those sectors of the economy which show signs of substantial improvement, would effectively mop up a considerable amount of rural economic surplus, giving rise to a large amount of revenue. We have, therefore, to remodel our tax structure in such a manner, during the Second Plan period, that the unbridged gap of Rs. 4,000 millions is mainly covered by a suitable extraction from the potential economic surpluses lying " hidden " in the rural and urban sectors of the country.

VI

CONCLUSION

The First Plan ushered in a new era for the Indian economy. Inspite of its modest outlook, its merits were many and its foibles were few. Its overall basic strategy for raising the development potential of the agricultural sector was sound. In fact, with its emphasis on agricultural extension programme and river valley projects, it aroused a new spirit of enterprise and enthusiasm at the grass-roots. But the First Plan was mainly of the "ground preparing" type and, therefore, it manipulated the strategic financial levers in a cautious manner. By achieving financial stability and by stepping up the expansion potential of the agricultural sector, the modest First Plan paved the way for the bold and ambitious Second Plan.

The Second Plan is a great conception and is also a grandiose affair. Its basic strategy has struck a compromise between the extreme communistic, power-oriented technique and the welfare-motivated planning idea of democratic countries. Though the Second Plan has the technique of "planning with unbalanced growth" as its kingpin, it has been considerably modified to suit a democratic environment. That is why heavy industries development and cottage industries development appear as two vital "links" in the planning mechanism. Due to the bold and ambitious targets of the Second Plan, the techniques and provisions of development finance also have a daring and novel outlook. But it should be remembered that the achievement of a process of continuous and accelerating economic growth necessitates both a spirited attitude and a new approach. Cynics would always criticize such a bold and ambitious programme on the ground that it is top heavy and would ultimately topple down. Optimists would look beyond the present horizon and would picture a refreshing panorama of prosperity, progress and spectacular success. It would only be possible to give a definite

judgment after the Plan has completed its performance. We would therefore keenly watch the process of unravelling of the Plan and would earnestly hope that most of its " big " promises are fulfilled.

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APPENDIX A

INPUT-OUTPUT ANALYSIS AND A DETAILED STUDY OF THE MATRIX TABLE

The kingpin of the original Leontief analysis is the input-output table which shows the actual flow of commodities and services in the economic system from one sector to another. We shall endeavour here to construct an input-output ("matrix" type) table for U.K. for the year 1950. Our data will be based on the figures available in the "Blue-Book on National Income and Expenditure for U.K.—1946-52", published by the Central Statistical Office, London. It should be noted that the "Blue-Book" has divided the sub-sectors into 10 items whereas we, in our example, simplify the analysis further by dividing them into 3 items—(i) agriculture and mining, (ii) manufacturing and (iii) other industries. In the construction of the input-output table for U.K. (1950) we broadly follow the procedure used by Prof. K. S. Lomax (in his article on "Allocation and Programming in Modern Economics", published in "The Manchester School of Economic and Social Studies", September, 1953) for illustrating the input-output technique of analysis with the help of the matrix table for U.K. in 1948. The main difference between our analysis and that of Prof. Lomax is that we use 1950 data whereas he used 1948 data. We now give below two input-output tables for U.K. (1950). The first table indicates actual 1950 proportions and the second table shows a number of unknowns which are to be determined.

First Table   (*actual* 1950 *proportions*)
Input-Output Table : United Kingdom, 1950 (£ *mn.*)

Purchases by / Sales by	(1) Agriculture and Mining	(2) Manufacturing	(3) Other industries	(4) Exports	(5) Govt.	(6) Households	(7) Capital	(8) Total output
(1) Agriculture and Mining	—	816	211	57	12	550	−5	1,641
(2) Manufacturing	384	—	934	1,992	424	3,510	810	8,061
(3) Other industries	199	1,049	—	542	1,644	3,911	752	8,097
(4) Imports	64	1,475	259	115	80	747	52	2,792
(5) Indirect taxes less subsidies	−41	781	314		11	499	21	1,585
(6) Incomes and depreciation	1,035	3,940	6,379	—	—	—	—	11,354
Total Input	1,641	8,061	8,097	2,713	2,171	9,217	1,630	33,530

Second Table (with unknowns to be determined)
Input-Output Table : United Kingdom, 1950

Purchases by Sales by	(1) Agriculture and Mining	(2) Manufacturing	(3) Other industries	(4) Exports	(5) Govt.	(6) Households	(7) Capital	(8) Total output
(1) Agriculture and Mining	—	y_1	y_2	57	12	550	—5	Y_A
(2) Manufacturing	y_3	—	y_4	2,199	424	3,510	810	Y_M
(3) Other industries	y_5	y_6	—	542	1,644	3,911	752	Y_O
(4) Imports	y_7	y_8	y_9	115	80	747	52	
(5) Indirect taxes less subsidies	y_{10}	y_{11}	y_{12}	—	11	499	21	
(6) Incomes and depreciation	y_{13}	y_{14}	y_{15}	—	—	—	—	
Total Input	Y_A	Y_M	Y_O					

In the second table we have put "y"s for individual inputs and outputs and "Y"s for total inputs and outputs of sectors and subsectors, all figures being shown in value terms. It should be noted that the unknowns are the effects on inputs and outputs of the various industries on imports, on factor incomes, and on indirect taxes.

Let us now briefly indicate the procedure for determining the values of the unknowns (i.e. "y"s of our second table. We know that the total output of each industry is the sum of the individual products; therefore we have :—

$$y_1 + y_2 + \quad 614 = Y_A \atop y_3 + y_4 + 6,943 = Y_M \atop y_5 + y_6 + 6,849 = Y_O \Bigg\} \quad \ldots\ldots\ldots (1)$$

Next we note that for the sake of simplification we have to introduce a theory of production in Leontief model which assumes that inputs are proportional to total outputs; therefore we can now write in the following manner :—

$$\begin{aligned} y_1 &= k_1 \ Y_M & y_2 &= k_2 \ Y_O \\ y_3 &= k_3 \ Y_O & \text{and} \quad y_4 &= k_4 \ Y_A \\ y_5 &= k_5 \ Y_A & y_6 &= k_6 \ Y_M \end{aligned}$$

Where the "k" s are constants.
Now substituting in the first set of equations we have :

$$\begin{aligned} Y_A - k_2 \ Y_M - k_2 \ Y_O &= \quad 614 \\ - k_6 \ Y_A + Y_M - k_4 \ Y_O &= 6,943 \\ - k_3 \ Y_A - k_5 \ Y_M + Y_O &= 6,849 \end{aligned} \Bigg\} \quad \ldots\ldots (2)$$

Now if we take it for granted that the proportional relationships between physical inputs and outputs remain the same throughout the change ; and that prices do not fluctuate as a consequence of the proposed expansion of export demand, then we are in a position to calculate the values of the "k"s.

The actual 1950 proportions are taken which gives us the following results :

$$k_1 = \frac{y_1}{Y_M} = \frac{816}{8,061} = .101$$

$$k_2 = \frac{y_2}{Y_0} = \frac{211}{8,097} = .026$$

$$k_3 = \frac{y_3}{Y_A} = \frac{384}{1,641} = .234$$

$$k_4 = \frac{y_4}{Y_0} = \frac{934}{8,097} = .115$$

$$k_5 = \frac{y_5}{Y_A} = \frac{199}{1,641} = .121$$

$$k_6 = \frac{y_6}{Y_M} = \frac{1,049}{8,061} = .130$$

$$\left.\rule{0pt}{6em}\right\} \quad \ldots\ldots(3)$$

(In a similar manner the values of k_7, k_8, k_9, ...k_{15} can be determined).

We are now in a position to rewrite our simultaneous equations in (2) above in the following manner :—

$$\left.\begin{array}{rcl} Y_A - \cdot101\ Y_M - \cdot026\ Y_0 &=& 614 \\ -\ \cdot234\ Y_A + Y_M - \cdot115\ Y_0 &=& 6,943 \\ -\ \cdot121\ Y_A - \cdot130\ Y_M + Y_0 &=& 6,849 \end{array}\right\} \quad \ldots(4)$$

By solving the above simultaneous equations we get the following values for Y_A, Y_M and Y_0 :—

$$Y_A = 1,663 ; \quad Y_M = 8,270 ; \quad Y_0 = 8,127.$$

Having now obtained the values for Y_A, Y_M and Y_0 and for the "k" s we are in a position to calculate the values of the "y" s, and substitute these values for the symbols used in our second table.

APPENDIX B

The central problem of economic planning is concerned with the task of allocating, in a planned and systematic manner, scarce productive resources so as to maximise the attainment of a set of predetermined objectives. Linear programming method (also known as "mathematical" programming) endeavours to tackle this problem in a most practical fashion. In fact, a compact bridge can be built up between "physical planning" and "financial planning" if linear programming technique is one of the main tools of analysis available in the kit bag of the planners. This is because the application of the linear programming method helps the planners to solve "the achievement of a given end at minimum cost or the maximisation of end-product at given cost." The fundamental idea of linear programming is based on the concept of a "process" (i.e. a specific method for performing an economic task). The main purpose of linear programming is to find out the optimal levels of productive processes under given circumstances. This tallies well with the main objective of planning which is concerned with the determination of a set of targets which are mutually consistent and for whose achievements the best set of productive processes, available under given circumstances, are undertaken.

The linear programming technique has close mathematical kinship to the methods of Leontief's "inter-industry" or "input-output" analysis though the two methods were discovered independently. When the number of products is equal to the number of processes, the linear programming method and the input-output analysis would give the same results—this is because, under such circumstances, the input-output analysis becomes a special case of linear programming. In fact, linear programming deals with the problems connected with the maximisation (or minimisation) of linear expression (usually a linear function of variables) subject to a set of constraints (usually, linear inequalities). But if the maximisation (or minimisation) problem is neglected for a while and we focus our attention mainly on a system in which there is one and only one way of ultimately arriving at the end-point; then this special type of linear programming method would coincide with Leontief's input-output analysis. It should be remembered that this special type of linear programming method (which is basically the same thing as Leontief's input-output analysis) is a tool which immensely helps the planners to determine a set of targets (which are both optimal and mutually consistent) for the different types of industries in the different sectors of the economy. (It should be noted that the classic reference on linear programming is: Koopmans, T.C.—"Activity Analysis of Production and Allocation"—Cowles Commission, New York, 1951).

APPENDIX C

A Comparison of Outlay-Distributions of India's First and Second Five Year Plans

The aggregate outlay in the public sector during the Second Plan period is estimated at Rs. 48,000 million. This should be compared with the final revised total outlay estimate of Rs. 23,560 million for the public sector during the First Plan period (though it is noted in the Second Five Year Plan that the aggregate actual outlay during the First Plan period is expected to be slightly below Rs. 20,000 million). We show below the outlay-distributions (in terms of major heads of development) of the First and Second Five Year Plans.

Outlay-Distributions of First and Second Plans

Major Heads of Development	First Five-Year Plan		Second Five-Year Plan	
	Total provision (Rs millions)	Per cent	Total provision (Rs. millions)	Per cent
I AGRICULTURE AND COMMUNITY DEVELOPMENT	3,570	15.1	5,680	11.8
(a) Agriculture	2,410	10.2	3,410	7.1
Agriculture programme	1,970	8.3	1,700	3.5
Animal husbandry	220	1.0	560	1.1
Forests	100	0.4	470	1.0
Fisheries	40	0.2	120	0.3
Co-operation	70	0.3	470	1.0
Miscellaneous	10	..	90	0.2
(b) National extension and community projects	900	3.8	2,000	4.1
(c) Other programmes	260	1.1	270	0.6
Village *panchayats*	110	0.5	120	0.3
Local development works	150	0.6	150	0.3
II. IRRIGATION AND POWER	6,610	28.1	9,130	19.0
Irrigation	3,840	16.3	3,810	7.9
Power	2,600	11.1	4,270	8.9
Flood control and other projects, investigations, etc.	170	0.7	1,050	2.2

NEW HORIZONS
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A STUDY OF PLANNING TECHNIQUES
WITH SPECIAL REFERENCE TO INDIA'S
FIRST AND SECOND FIVE YEAR PLANS

By

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First Edition · SEPTEMBER 1956

To

My Father And Mother

" The irrational and planless character of society must be replaced by a planned economy . . . . . "

(Erich Fromm—"Escape from Freedom", 1941, P272.)

PREFACE

At its inception, this book may be said to have had three main objectives. First, it was to be a book whose main purpose would be to give a brief and lucid exposition of the new ideas dealing with planning techniques. The second objective of this work was to analyse the basic techniques of India's First and Second Five Year Plans in the light of practical experiences of planning in Russia, China and Poland and to investigate how far the general techniques of planning could be applied for the Indian case. The third aim was to write a book which would be rigorous in its analysis but, at the same time, would not carry this rigour into such great detail so as to make the book overwhelming for the non-experts.

I have had generous treatment from my teachers, friends and acquaintances. It is impossible for me here to list by name all of those to whom I am indebted. However, I wish to express my sincere gratitude to Mrs Joan Robinson of Cambridge University. Prof. Lorie Tarshis of Stanford University. Mr. Nicholas Kaldor of Cambridge University and Mr. J. Downie of the Oxford Institute of Statistics with whom I had the opportunity of discussing some specific problems of national economic planning while attending the " advanced refresher course in economics " in 1955. Special acknowledgments are made to Dr. J. P. Neogy (Head of the Department of Economics, Calcutta University), Dr. S. K. Basu (Reserve Bank Professor of Industrial Finance, Calcutta University), Dr. S. N. Sen (Reader-in-Economics, Calcutta University), and Prof. P. Chakrabartty (Head of the Planning Division, Indian Statistical Institute) for their stimulating counsel and valuable suggestions throughout the entire period of preparation of this book.

Calcutta University,
September, 1956.

A. G.

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Major Heads of Development	First Five-Year Plan		Second Five-Year Plan	
	Total provision (Rs. millions)	Per cent.	Total provision (Rs. millions)	Per cent.
III. INDUSTRY AND MINING ..	1,730	7.6	8,900	18.5
Large and medium industries ..	1,480	6.3	6,170	12.9
Mineral development ..	10	..	730	1.5
Village and small industries	300	1.3	2,000	4.1
IV. TRANSPORT AND COMMUNICATIONS	5,570	23.6	13,850	28.9
Railways	2,680	11.4	9,000	18.8
Roads ..	1,300	5.5	2,460	5.1
Road transport ..	120	0.5	170	0.4
Ports and harbours ..	340	1.4	450	0.9
Shipping ..	260	1.1	480	1.0
Inland water transport			30	0.1
Civil air transport ..	240	1.0	430	0.9
Other transport ..	30	0.1	70	0.1
Posts and telegraphs ..	500	2.2	630	1.3
Other communications ..	50	0.2	40	0.1
Broadcasting ..	50	0.2	90	0.2
V. SOCIAL SERVICES ..	5,330	22.6	9,450	19.7
Education ..	1,640	7.0	3,070	6.4
Health ..	1,400	5.9	2,740	5.7
Housing ..	490	2.1	1,200	2.5
Welfare of backward classes ..	320	1.3	910	1.9
Social welfare ..	50	0.2	290	0.6
Labour and labour welfare ..	70	0.3	290	0.6
Rehabilitation ..	1,360	5.8	900	1.9
Special schemes relating to educated unemployment ..	..	..	50	0.1
VI. MISCELLANEOUS ..	690	3.0	990	2.1
Total ..	23,560	100.0	48,000	100.0